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National Energy Board Report

Enbridge Pipelines Inc.

OH-001-2013

January 2014

Facilities

Canada

National Energy Board

National Energy Board Report

In the Matter of

Enbridge Pipelines Inc.

Application dated 14 December 2012
for the Edmonton to Hardisty Pipeline Project

OH-001-2013

January 2014

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Glossary of Terms, Abbreviations and Units

AB	Alberta
Act or NEB Act	*National Energy Board Act*
AENV	Alberta Environment
AER	Alberta Energy Regulator (formerly Energy Resources Conservation Board)
AESRD	Alberta Environment and Sustainable Resource Development
Applicant, Enbridge or the Company	Enbridge Pipelines Inc.
Application	The application submitted to the Board by Enbridge for the proposed Edmonton to Hardisty Pipeline Project
Board or NEB	National Energy Board
BTSRA	The Battleford Trail Surface Rights Association
CAPP	Canadian Association of Petroleum Producers
CEAA, 2012	*Canadian Environmental Assessment Act, 2012*
Certificate	The Certificate of Public Convenience and Necessity, applied-for pursuant to section 52 of the *National Energy Board Act* (NEB Act), authorizing the construction and operation of the Section 52 Facility.
CLT	Canadian Local Tolls
CNRL	Canadian Natural Resources Limited
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
Crossing Regulations	National Energy Board Pipeline Crossing Regulations, Part I and Part II
CSA	Canadian Standards Association
CSA Z245.1	Canadian Standards Association Z245.1, Steel pipe
CSA Z662-11	Canadian Standards Association Z662-11, Oil and Gas Pipeline Systems
CTS	The Competitive Toll Settlement, approved by the Board 23 June 2011, Order TO-03-2011 (A1Z9W5)
DFO	Fisheries and Oceans Canada
DUC	Ducks Unlimited Canada

EA	Environmental Assessment
EC	Environment Canada
EAE	Enhanced Aboriginal Engagement
EPP	Environmental Protection Plan
EPR	Emergency Preparedness and Response
ESA	Environmental and Socio-Economic Assessment
FPWC	Federal Policy on Wetland Conservation
GDPP Index	Canada Gross Domestic Product at Market Prices Index
GHG	greenhouse gas
GIC	Governor in Council. The Governor in Council is the Governor General acting on the advice of the Federal Cabinet.
GP	Government Participant is a federal, provincial, territorial or municipal government organization that has been approved by the Board as a hearing participant.
HDD	Horizontal Directional Drilling
IJT	International Joint Tolls
ILI	In-line inspection
IMP	Integrity Management Program
Intervenor	A person who applied to participate in the hearing and was allowed by the Board to participate as an Intervenor.
KP	kilometre post
KPH	Locations along a series of minor route deviations for the Project (i.e KPHA, KPHB, etc.)
KPT	Locations along the Edmonton Terminal tie-in route deviation
Landowners Group	Intervenor in the OH-001-2013 Hearing
MOP	maximum operating pressure
NEB or Board	National Energy Board
NEB Report or the Report	National Energy Board Report
NGOs	non-government organizations
NPS	nominal pipe size (in inches)

Order	A Board exemption Order made under section 58 of the NEB Act, exempting certain facilities from specific provisions of the NEB Act. In this case Enbridge requested an Order relieving it from paragraphs 30(1)(b), 31(c), 31(d) and sections 33 and 47 of the NEB Act in respect of its proposed new pump stations and associated facilities.
OPR	*National Energy Board Onshore Pipeline Regulations*
Participant	A person who applied to participate in the hearing and whose application to participate was approved by the Board. The term Participants includes Enbridge, and any Intervenor, Government Participant and Commenter in this hearing.
Pipeline	The proposed pipeline from Enbridge's existing Edmonton Terminal, near Edmonton, Alberta to its existing Hardisty Terminal, near Hardisty, Alberta
PFP	National Energy Board's Participant Funding Program
PNT	Protective Notation
PPBoR	Plan, Profile and Book of Reference
Project	Enbridge's proposed Edmonton to Hardisty Pipeline Project
QMS	Quality Management System
RAP	restricted activity periods
Report	The Report is issued by the Board to the Governor in Council that sets out the recommendation as to whether the Certificate should be granted for all or any portion of the Project and the reasons for the recommendation. This Report also contains the Board's decisions in respect of Enbridge's Section 58 Facilities and Part IV application.
RoW	right-of-way
RSA	Regional Study Area
RSG	Representative Shipper Group
SARA	*Species at Risk Act*
SCADA	Supervisory Control and Data Acquisition
Section 52 Facility	Enbridge's proposed construction and operation of a new 914.4 mm (Nominal Pipe Size 36) outside diameter crude oil pipeline, approximately 182 km in length, from its existing Edmonton Terminal, near Edmonton, AB to its existing Hardisty Terminal, near Hardisty, AB.

Section 58 Facilities	Enbridge's proposed construction and operation of a new initiating pump station at its existing Edmonton Terminal, a new pump station at each of its existing Kingman and Strome stations, and associated facilities and infrastructure at its existing Edmonton and Hardisty Terminals.
Section 58 Order	NEB Exemption Order, pursuant to subsection 58(1) of the NEB Act, authorizing the construction and operation of the Section 58 Facilities
TC	Transport Canada
TLU	Traditional Land Use
TTN	Tsuu T'ina Nation
TUC	Transportation Utility Corridor
TWS	temporary work space

List of Units

b/d	barrel(s) per day
km	kilometer
m	metre
m^3	cubic metre(s)
m^3/d	cubic metre(s) per day
US $	US dollars

Recital and Appearances

IN THE MATTER OF the *National Energy Board Act* (NEB Act) and the regulations made thereunder; and

IN THE MATTER OF an Application dated 14 December 2012 filed with the National Energy Board by Enbridge Pipelines Inc. (Enbridge) under file OF-Fac-Oil-E101-2012-08 02 for the Edmonton to Hardisty Pipeline Project (Project), which is comprised of the following requests:

a) a recommendation, in the National Energy Board's Report to the Governor in Council, that a Certificate of Public Convenience and Necessity under section 52 of the NEB Act be issued for the applied-for section 52 facility;

b) an Order under section 58 of the NEB Act, exempting the applied-for Section 58 Facilities from the provisions of paragraphs 30(1)(b), 31(c), 31(d) and sections 33 and 47 of the NEB Act; or, in the alternative, allowing Enbridge to make its application under the referenced section in relation to the Kingman pump station, separately from the balance of the Project;

c) an approval under Part IV of the NEB Act for the proposed tolling methodology for the Project; and

d) any such further and other relief as Enbridge may request or the National Energy Board may deem appropriate under section 20 of the NEB Act.

IN THE MATTER OF National Energy Board Hearing Order OH-001-2013 dated 11 March 2013;

HEARD initially in Camrose, Alberta on 1 and 2 October 2013;

BEFORE:

D. Hamilton	Presiding Member
P. Davies	Member
A. Scott	Member

Appearances	**Participants**	**Witnesses**
R. Bourne	Enbridge	N. Earnest
D.G. Davies		J.D. Garcia
		J. Honda-McNeil
		J. Houncaren
		M. Monteith
		A. Pastoor
		N. Reid
		C. Ross

		D. Tribe L. Yurkiw
T. Nahirniak D. Sherbanuk L. Regehr	The Battleford Trail Surface Rights Association	
D. Bedell M. MacDonald	Landowners Group	
D. Ingram	Environment Canada	
K. Sidhu	National Energy Board	

HEARD in Calgary, Alberta and remotely from Camrose, Alberta on 28 October 2013;

BEFORE:

D. Hamilton	Presiding Member
P. Davies	Member
A. Scott	Member

Appearances	**Participants**	**Witnesses**
R. Bourne D.G. Davies	Enbridge	J. Houncaren M. Monteith N. Reid E. Tuck L. Yurkiw
T. Nahirniak D. Sherbanuk L. Regehr	The Battleford Trail Surface Rights Association	
D. Bedell M. MacDonald	Landowners Group	
K. Sidhu	National Energy Board	

HEARD in Camrose, Alberta on 4 and 5 December 2013;

BEFORE:

D. Hamilton	Presiding Member
P. Davies	Member
A. Scott	Member

R. Bourne D.G. Davies	Enbridge	J. Houncaren M. Monteith N. Reid E. Tuck L. Yurkiw
T. Nahirniak D. Sherbanuk L. Regehr	The Battleford Trail Surface Rights Association	
D. Bedell M. MacDonald	Landowners Group	
D. Ingram	Environment Canada	
A. Chaudhary	National Energy Board	

Chapter 1

Summary of Recommendation

1.1 Recommendation

1.1.1 Section 52 Facility

The National Energy Board (Board) recommends that a Certificate of Public Convenience and Necessity (Certificate) be issued for the Section 52 Facility of the Enbridge Pipelines Inc. (Enbridge) Edmonton to Hardisty Pipeline Project (Project). The Board has set out terms and conditions, contained in Appendix II of this *National Energy Board Report* (Report), to which the Certificate would be subjected to if the project is approved by the Governor in Council. This Report sets out the reasons for this recommendation and the terms and conditions to which the Certificate would be subject.

1.2 Decisions

1.2.1 Section 58 Facilities

The Board has decided to grant an exemption Order for the Section 58 Facilities. The Board also grants Enbridge exemption from paragraphs 31(c) and 31(d), and section 33 of the NEB Act, subject to the conditions contained in the Order (Appendix III). As a result, Enbridge will also be exempted from the requirement to file a plan, profile and book of reference for the Section 58 Facilities. However, the Board does not grant Enbridge exemption from the provisions of paragraph 30(1)(b) and section 47 of the NEB Act and advises that Enbridge will have to apply for leave to open the Section 58 Facilities. Since the Order is only necessary if the Governor in Council approves the Section 52 Facility, pursuant to subsection 19(1) of the Act, the Board has decided that the Order will take effect only if the Certificate is issued.

1.2.2 Tolling Methodology

Should a Certificate for the Project be issued, the Board approves Enbridge's proposed tolling methodology for the Project.

This Report constitutes our recommendation in respect of the Application considered by the Board in the OH-001-2013 proceeding.

D. Hamilton
Presiding Member

P. Davies
Member

A. Scott
Member

Calgary, Alberta
January 2014

Chapter 2

Introduction

2.1 The Application

On 14 December 2012, Enbridge Pipelines Inc. (Enbridge) filed an application (Application) with the National Energy Board (Board or NEB) seeking permission to construct and operate the Edmonton to Hardisty Pipeline Project (Project), which is defined as:

- construction of a new 914.4 mm (Nominal Pipe Size 36) outside diameter crude oil Pipeline, approximately 182 kilometres (km) in length, from Enbridge's existing Edmonton Terminal, near Edmonton, Alberta to its existing Hardisty Terminal, near Hardisty, Alberta (Section 52 Facility); and

- construction of a new initiating pump station at Enbridge's Edmonton Terminal, a new pump station at each of its existing Kingman and Strome stations, and associated facilities and infrastructure at its Edmonton and Hardisty Terminals (Section 58 Facilities).

Figure 2-1 provides an overview of the facilities and the applied-for general route for the Project.

The Pipeline right-of-way (RoW) for the Project would be alongside and contiguous to an existing Enbridge pipeline RoW and other existing linear disturbances for approximately 91.3 per cent of its length.

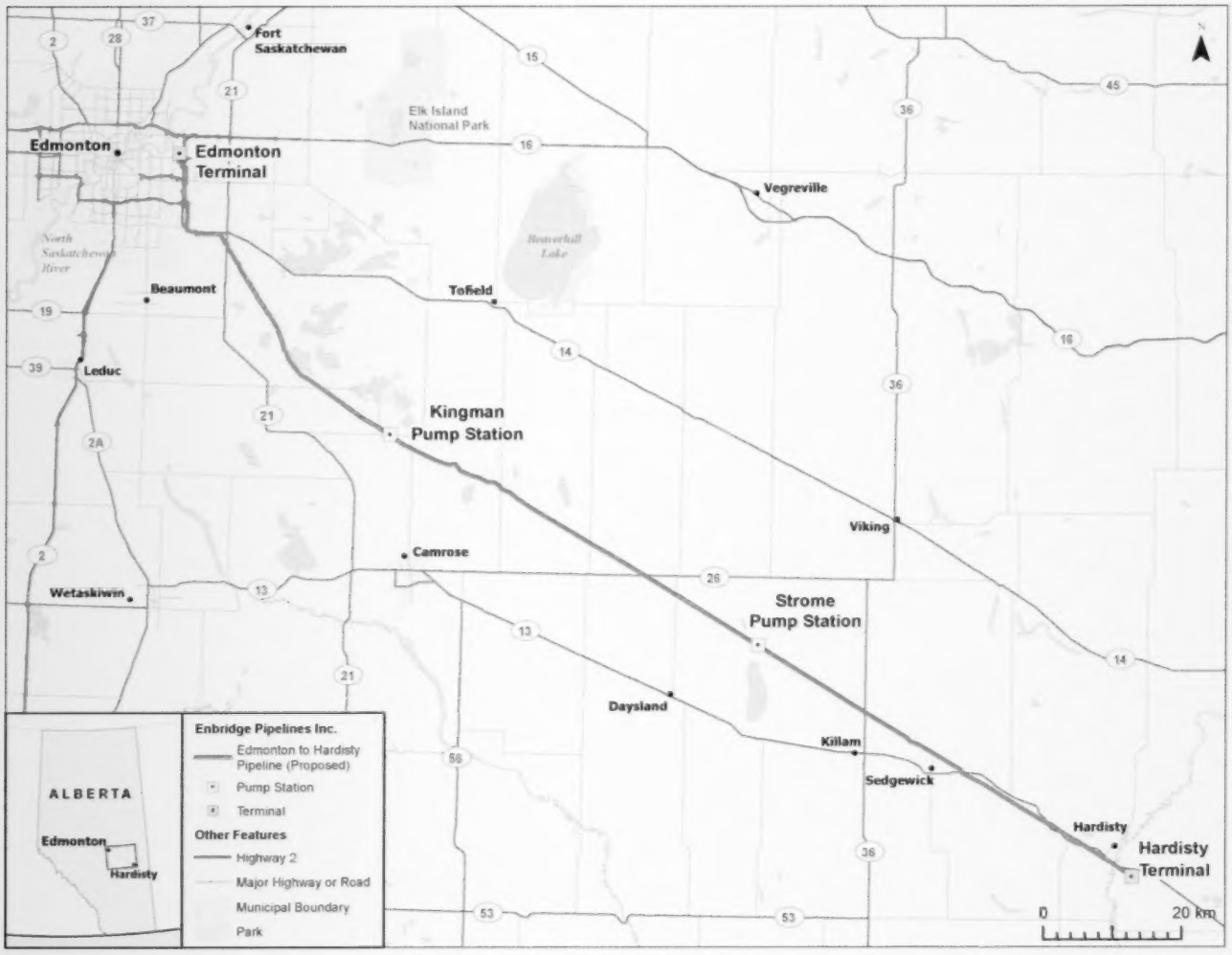
Enbridge indicated that, subject to the receipt of all required regulatory approvals, construction of the pump stations and associated facilities is expected to commence in the first quarter of 2014, with the Pipeline construction expected to commence in the third quarter of 2014. The anticipated in-service date for the Project, excluding the Kingman pump station, would be the first quarter of 2015 and would have an initial capacity of 90.6 thousand m^3/d (570 thousand b/d). The in-service date for Kingman pump station would be the third quarter of 2015 which would bring the Project to a total annual capacity of 127.1 thousand m^3/d (800 thousand b/d).

In its Application, Enbridge requested the following from the Board:

- a recommendation, in the *National Energy Board Report* (Report) for the Project to the Governor in Council (GIC), that a Certificate of Public Convenience and Necessity (Certificate) under section 52 of the *National Energy Board Act* (NEB Act) be issued for the Section 52 Facility;

- an Order under section 58 of the NEB Act, exempting the Section 58 Facilities from the provisions of paragraphs 30(1)(b), 31(c), 31(d) and sections 33 and 47 of the NEB Act; or, in the alternative, allowing Enbridge to make its Application under the referenced section in relation to the Kingman pump station, separately from the balance of the Project;

Figure 2-1 Project Location Map



- an approval under Part IV of the NEB Act for the tolling methodology for the Project; and
- any such further and other relief as Enbridge may request or the Board may deem appropriate under section 20 of the NEB Act.

Following its review of the Application, the Board made the determination on 17 January 2013 that the Application was complete to proceed to assessment, and that the Board would issue its Report no later than 17 April 2014, subject to any modifications to the time limit allowed under the NEB Act.

2.2 OH-001-2013 Hearing

2.2.1 Hearing Order

On 11 March 2013, the Board issued Hearing Order OH-001-2013 (Hearing Order), which established the process for the Board's consideration of the Application. The Hearing Order included the List of Issues that the Board considered during its assessment of Enbridge's Application. The List of Issues is included in Appendix I of this Report.

2.2.2 Hearing Participation

Pursuant to subsection 55.2 of the NEB Act, the Board must determine who may participate in a hearing for a project before the Board. To be eligible to participate, interested persons or groups must request participation and demonstrate in their application to the Board that:

- they are directly affected by the proposed project; or
- they have relevant expertise or information that will assist the Board in making its decision and recommendation in respect to a proposed project.

Those who wished to participate in the hearing process for the Project were requested to submit an Application to Participate (ATP) to the Board by 17 April 2013.

The Board received eight ATP forms for the Project. In its Procedural Update No. 1 dated 8 May 2013, the Board issued its decision on participation, indicating that all eight applicants had been accepted to participate in the hearing, and provided the List of Participants for the OH-001-2013 Hearing.

On 25 September 2013, Tsuu T'ina Nation (TTN) filed a letter with the Board stating that through its engagement activities with Enbridge and the Board's regulatory review process, all issues of concern arising from the Project had been resolved. TTN withdrew its objection from the proceeding.

2.2.3 Oral Hearing Process

The oral portion of the public hearing for the Project, pursuant to the Hearing Order, was initially held in Camrose, Alberta on 1 and 2 October 2013.

In response to motions received from the Landowners Group and the Battleford Trail Surface Rights Association (BTSRA) regarding their lack of sufficient time to review the Supplemental Environmental and Socio-economic Assessment (Supplemental ESA) filed by Enbridge on 26 September 2013, and Enbridge's oral reply to the motions at the hearing in Camrose on 1 October 2013, the Board decided that the oral portion of the OH-001-2013 Hearing would proceed as scheduled. However, to give more time for Participants to review the Supplemental ESA, the Board also decided it would hold a separate oral process for Participants to cross-examine Enbridge on the Supplemental ESA, and present final argument.

On 10 October 2013, the Board issued a Procedural Directive which provided the details for the second part of the oral portion of the OH-001-2013 Hearing on Enbridge's Supplemental ESA, and for final argument.

This second part of the oral portion of the hearing was held on:

- 28 October 2013 in Calgary, Alberta and simultaneously in Camrose, Alberta with Board staff present to support and facilitate the remote video participation of the Landowners Group, the BTSRA, and any other Participants in that area; and
- 4-5 December 2013 in Camrose, Alberta.

The evidentiary portion of the OH-001-2013 hearing closed on 4 December 2013 and the oral portion ended on 5 December 2013.

2.2.4 Participant Funding

The Board administers a Participant Funding Program (PFP) which provides financial assistance to support timely and meaningful engagement of individuals, Aboriginal groups, landowners, incorporated non-industry not-for-profit organizations, or other interested groups who seek to participate in the Board's oral hearing process for facilities applications.

On 17 January 2013, the Board made available $200,000 under its PFP to facilitate participation in the regulatory process for the Project. The deadline to submit an application for funding was 30 August 2013. Four applications were received from Aboriginal groups and landowners, with a total funding request for $329,250.

Following a review of the applications by a funding review committee, independent of the Project regulatory review process, the Landowners Group was awarded funds for $15,000 and TTN for $21,400.

More details on the Board's allocation of funds for the Project can be found at the following link: http://www.neb-one.gc.ca/clf-nsi/rthnb/pblcprtcptn/prtcpntfndngprgrm/llctnfnd_nbrd_dmntn_hrdsty-eng.html.

2.3 Life Cycle Approach

In considering the Project, the Board used a life cycle approach. All issues and concerns before the Board were considered in the context of the Project (i.e., design, planning, construction, operation, decommissioning and abandonment). The Board also considered its various regulatory roles, such

as application assessment and post-decision condition compliance, with respect to each stage in the Project's life cycle.

2.4 Public Interest

In reviewing an application, the Board must consider whether the applied-for facilities are in the overall Canadian public interest. In doing so, the Board must, after carefully weighing all of the evidence in the proceeding, exercise its discretion in balancing the interests of a diverse public.

The Board has described the public interest in the following terms:

> *The public interest is inclusive of all Canadians and refers to a balance of economic, environmental, and social interests that changes as society's values and preferences evolve over time. The Board estimates the overall public good a project may create and its potential negative aspects, weighs its various impacts, and makes a decision*[1].

In making its recommendation regarding public convenience and necessity, the Board must rely only on the facts that are established to its satisfaction through the hearing process, and must also proceed in compliance with the principles of natural justice.

1 *Pipeline Regulation in Canada: A Guide for Landowners and the Public (Revised 2010)*, NEB, Page 1.

Chapter 3

Economic Feasibility

In making a recommendation on an application pursuant to section 52 of the NEB Act, the Board considers all that appears to be directly related and relevant, and may also consider the following:

- the availability of oil, gas or any other commodity to the pipeline;
- the existence of markets, actual or potential;
- the economic feasibility of the pipeline;
- the financial responsibility and financial structure of the applicant, the methods of financing the pipeline and the extent to which Canadians will have an opportunity to participate in the financing, engineering and construction of the pipeline; and
- any public interest that in the Board's opinion may be affected by the issuance of a Certificate or the dismissal of the application.

An applicant is expected to demonstrate the economic feasibility or the need for the project; any alternatives to the project that have been evaluated and considered; and the justification for the project over other possible options. In assessing the economic feasibility of a proposed project, the Board considers the need for the project, the product that would be available for transportation on the pipeline, the availability of adequate markets to receive the product to be delivered by the pipeline, and the adequacy of the capacity of the pipeline.

The Board also considers other impacts of the project, such as the likelihood of the facilities being used at a reasonable level over the expected economic life of the project, an applicant's ability to finance the construction, the ongoing operation and maintenance of the pipeline and facilities, and the recovery of project costs through tolls. In addition, the Board considers the project's effects on any other relevant matters of public interest.

The Board's expectations regarding the economic feasibility of a proposed project are set out in the Board's Filing Manual.

Matters relating to toll principles and methodology are discussed in Chapter 10.

3.1 Crude Oil Supply

Views of Enbridge

Enbridge stated that the Project has been developed in conjunction with shippers to address the pipeline transportation capacity constraint and will enable the delivery of crude oil to existing pipelines and facilities located in the Hardisty area.

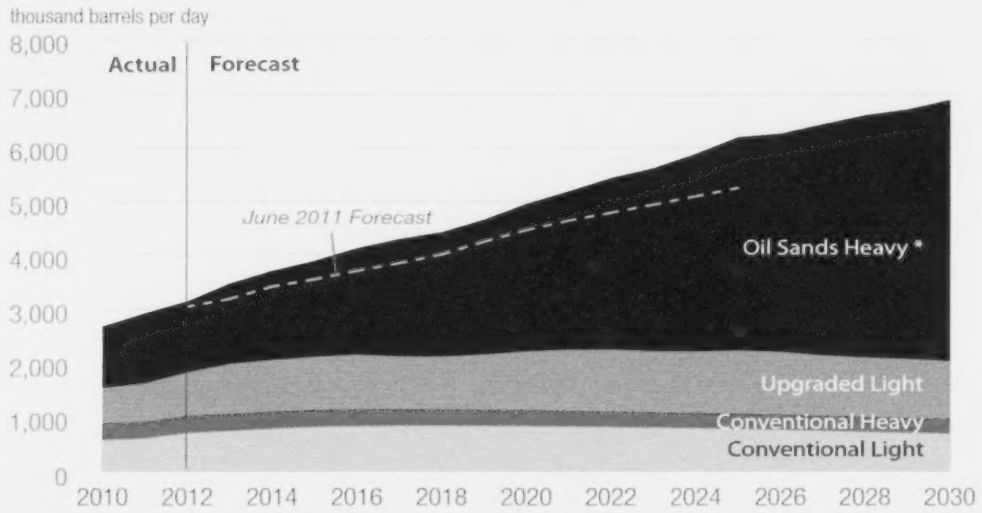
Enbridge submitted that the Project would enable it to accommodate incremental volumes of oil sands supply. Enbridge further stated that without such integration, insufficient pipeline capacity

will exist to transport growing volumes of oil sands crude to be delivered from the crude oil transportation hub at Edmonton to the transportation hub at Hardisty.

In support of its Application, Enbridge filed the estimates of Canadian Crude Oil and Bitumen Reserves (Table 10-1 in the Application)[2] taken from Appendix 1 from the Board's *Canadian Energy Overview Briefing Note*[3] released in July 2012. The Table shows that Canada's crude oil and bitumen reserves are 27.4 billion m^3 (172.6 billion barrels) ranking third behind only Saudi Arabia and Venezuela[4]. Enbridge submitted that approximately 26.9 billion m^3 (169.2 billion barrels) or 98 per cent of those reserves are located in Alberta's oil sands. Approximately 95 per cent of Alberta's oil sands have yet to be developed.

In support of its assessment on available supply to the Pipeline, Enbridge filed the Canadian Association of Petroleum Producers' (CAPP) *Crude Oil Forecast and Pipelines Report, 2012* (CAPP report). In its report, CAPP stated that the primary driver for future growth of supply continues to be oil sands development. CAPP's forecast (Figure 3-1) shows significant growth in Western Canadian crude oil supply (which includes Oil Sands Heavy, Upgraded Light, and Conventional Heavy and Light oil). By 2020, CAPP expects Western Canadian oil supply will approach 795 thousand m^3/d (5 million b/d) and will grow annually by 33.1 thousand m^3/d (208 thousand b/d) over the forecast period, reaching 1.08 million m^3/d (6.8 million b/d) by 2030.

Figure 3-1
CAPP's Western Canada Oil Sands & Conventional Supply



Source: Enbridge's Application, Appendix 10-1, Filing: A3E2W6 (originally sourced from CAPP's *Crude Oil Forecast, Markets & Pipelines,* June 2012)

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2 Table 10-1 [Volume 1, Table 10-1, PDF pages 1 and 2 of 88 (A3E2W6)]

3 NEB Canadian Energy Overview 2011 (http://www.neb-one.gc.ca/clf-nsi/rnrgynfmtn/nrgyrprt/nrgyvrvw/cndnnrgyvrvw2011/cndnnrgyvrvw2011-eng.html#nnx1)

4 Oil and Gas Journal, December 6, 2010

In further support of its Application, Enbridge also filed the Alberta Raw Bitumen Production Forecast to 2021, from the Alberta Energy Resources and Conservation Board's (ERCB)[5] ST98 report entitled *Alberta's Energy Reserves 2011 and Supply/Demand Outlook 2012-2021.* Enbridge indicated that the ERCB's ST98 report estimates raw bitumen production in excess of 550 thousand m^3 /d (3.5 million b/d) by 2021.

Enbridge emphasized that, as demonstrated by the estimates of bitumen reserves and the supply forecasts, the long term growth in Western Canada will come from the development of the oil sands.

Views of Participants

No Participants expressed any concerns with respect to Enbridge's supply forecast for the Project.

Views of the Board

The Board notes that the Project was developed in conjunction with shippers to address the emerging pipeline transportation capacity constraint between Edmonton and Hardisty. No Participant raised any concerns about the bitumen reserve estimates and the supply forecasts that have been filed by Enbridge. The estimates of Canada's established remaining crude oil and bitumen reserves indicate that the resource is vast and much of the supply has yet to be developed. The Board is of the view that long term growth of crude oil supply is likely and that it is reasonable to expect that increases in Western Canadian crude oil supply will support the need for, and the use of, the Project now and in the future. The Board is also of the view that Western Canadian crude oil production will continue to grow as a result of the development of the oil sands.

3.2 Markets

In support of its assessment of the potential markets, Enbridge submitted a report by Muse Stancil & Co. (Muse) dated November 2012 entitled *Market Prospects for the Edmonton to Hardisty Pipeline Project for Enbridge* (Muse report). The Muse report assessed the demand for Canadian heavy crude oil at Hardisty (based on the CAPP 2012 supply forecast) against the inbound heavy crude oil pipeline capacity.

According to Muse, six major crude oil markets are accessible from the Hardisty Hub:

- Ontario/Quebec
- Rockies
- Upper Midwest
- Lower Midwest
- Midcontinent
- Gulf Coast

In addition, Enbridge stated that any destination downstream of Edmonton can be considered a market to absorb the volumes shipped on the Project. These destinations include locations on the

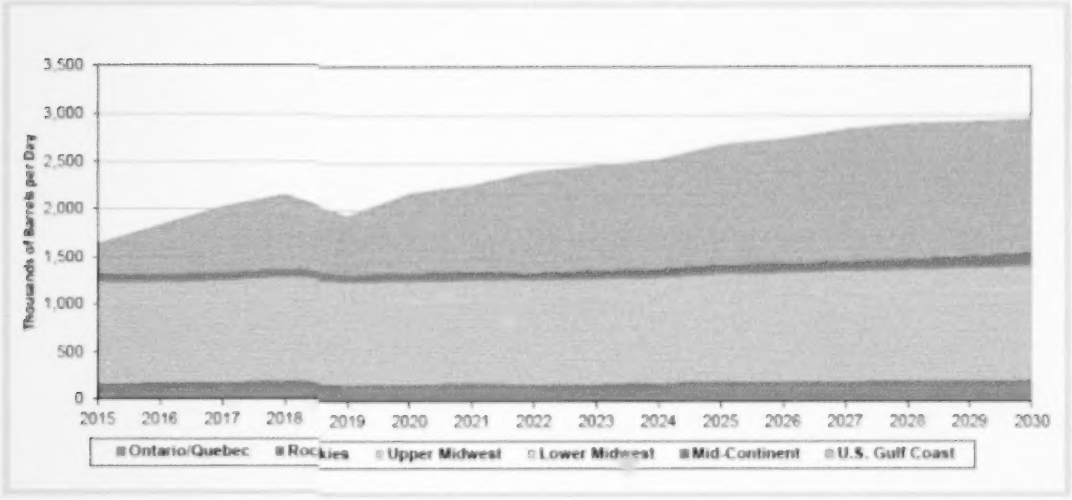
5 The ERCB's name was changed to the Alberta Energy Regulator (AER) in July 2013.

Enbridge Mainline[6], extended markets connected to the Enbridge Mainline, and markets served by the pipelines exiting Hardisty.

For its demand analysis, Muse indicated the location and capacity of each operating refinery and their estimated heavy crude oil demand over the forecast period. The Muse report also examined refinery expansions in the Upper Midwest, a potential refinery expansion in the Lower Midwest and the potential for increased oil demand in the Ontario/Quebec market. In its report, Muse took into consideration the proposed re-reversal of Enbridge's Line 9b and its potential impact on the Ontario/Quebec market.

Figure 3-2, shows that the Gulf Coast has the most growth potential for heavy crude oil transiting Hardisty, while other markets will remain relatively static in terms of heavy crude oil consumption. The Muse Report forecasts that the volume of heavy crude oil reaching the Gulf Coast market in 2015 will be roughly 51.7 thousand m^3/d (325 thousand b/d), climbing to 222.6 thousand m^3/d (1.4 million b/d) by 2030.

Figure 3-2
Disposition of Heavy Crude Transiting Hardisty



Source: (Application, Volume 1, Appendix 10-2, PDF page 66, Figure 2 [Filing A3E2W6])

Enbridge further noted that that the CAPP report also forecasts that crude oil exports from western Canadian producers to the U.S. Gulf Coast (USGC) could be approximately 174.6 thousand m^3/d (1.1 million b/d) by 2020.

The Muse report concluded that by 2015, incremental pipeline capacity for the movement of heavy crude oil into Hardisty is required, and that the Project satisfies this need and would allow incremental heavy crude oil to access the markets connected to Hardisty.

6 The Enbridge Mainline, as defined by CAPP, is a multi-pipeline system that delivers crude oil and other refined products from western Canada, Montana and North Dakota to markets in western Canada, the U.S. Midwest and Ontario.

Views of Participants

No Participants raised any concerns about the information provided by Enbridge regarding demand projections.

Views of the Board

The Board finds the assessment of the downstream market for Western Canadian crude oil to be reasonable. The Board notes that none of the Participants expressed concerns with the Muse report that has been filed by Enbridge. The Board is of the view that the Muse report provides evidence that demand for Canadian heavy crude oil from markets, accessible from Hardisty, is likely to consume all incremental volumes. The Board is satisfied that there will be sufficient crude oil supply and demand from markets to support the construction and long-term operation of the Project.

3.3 Transportation, Pipeline Capacity, and Throughput

In its application, Enbridge noted that Edmonton and Hardisty are major transportation centres for Western Canadian crude oil. Enbridge stated that feeder pipeline systems gather and transport the crude oil to Edmonton and Hardisty for onward delivery to downstream markets. Enbridge stated that according to the ERCB (now called AER), there is currently over 500 thousand m^3/d (3.2 million b/d) of upgraded and non-upgraded bitumen pipeline capacity delivering primarily to Edmonton and Hardisty.

The crude oil pipelines that transport oil sands heavy crude oil to Hardisty are:

1. the Enbridge Athabasca system, currently transporting heavy and light crude oil;
2. the Enbridge Line 4, transporting only heavy crude oil blends;
3. the Inter Pipeline Fund Cold Lake Pipeline, transporting only heavy crude oil blends; and
4. the Canada Natural Resources Limited Echo Pipeline, transporting only heavy crude oil blends.

There are three major pipelines with a combined capacity of 357.6 thousand m^3/d (2.25 million b/d) that deliver crude oil from Edmonton to export markets. They are:

- the Enbridge Mainline - 296.4 thousand m^3/d (1.87 million b/d);
- Kinder Morgan's Trans Mountain Pipeline - 47.7 thousand m^3/d (300.5 thousand b/d); and,
- Plains Rangeland (Rockies) - 13.5 thousand m^3/d (85 thousand b/d).

Total crude oil pipeline capacity out of Hardisty is 524.6 thousand m^3/d (3.3 million b/d). There are five major pipelines that deliver crude oil to export markets. They are:

- the Enbridge Mainline - 296.4 thousand m^3/d (1.9 million b/d);
- the Alberta Clipper - 71.5 thousand m^3/d (450 thousand b/d);
- Keystone - 93.8 thousand m^3/d (590 thousand b/d);
- Bow River/Milk River - 18 thousand m^3/d (113.4 thousand b/d); and
- Kinder Morgan's Express Pipeline - 44.9 thousand m^3/d (283 thousand b/d)

The Project, Enbridge submitted, is being constructed to accommodate the need for increased crude oil transportation between the Enbridge terminals in Edmonton and Hardisty. Enbridge stated that CAPP forecasts show oil sands supply will grow by approximately 120 thousand m^3/d (757 thousand b/d) between 2011 and 2015, the year that the Pipeline will be operational. Of this volume, Enbridge indicated producers tend to favour directing incremental oil sands volumes to Edmonton as opposed to Hardisty. Enbridge projected that in 2015, the incremental amount of crude oil from oil sands supply growth that could be directed to Edmonton is approximately 70 thousand m^3/d (439 thousand b/d). Enbridge stated that as supply to Edmonton grows, supply to the proposed Pipeline will grow and it will be used and useful.

In all the years between 2015 and 2025, with the exception of 2016[7], there is a need for additional inbound heavy crude oil pipeline capacity to Hardisty (Table 3-1).

Table 3-1
Hardisty Heavy Crude Oil Supply-Demand Balance

(Thousands of Barrels per Calendar Day)

Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Lower Range	(200)	15	(227)	(383)	(151)	(437)	(528)	(725)	(797)	(865)	(1,050)
Upper Range	(97)	118	(124)	(280)	(48)	(334)	(425)	(622)	(694)	(762)	(947)

Muse noted that by around 2021, the inbound pipeline capacity to Hardisty is completely full and heavy crude oil will likely have to be transported by rail to Hardisty, or to the end-market.

Enbridge submitted that the Project does not result in an overall increase in the Enbridge Mainline system capacity. It stated that the purpose of the Project it to better align the Enbridge Mainline delivery capability with upstream oil sands pipeline developments.

Views of Participants

No Participants expressed any concerns with respect to Enbridge's throughput forecast for the Project.

Views of the Board

The Board notes the Muse report provided strong evidence on the need for additional transportation capacity of crude oil between Edmonton and Hardisty. The Board expects that the large supply area will require an expansion downstream in order to move volumes from Edmonton to Hardisty. The Board is of the view that Enbridge has demonstrated that without the Project, most of the volumes contemplated to flow on the pipeline would not be able to reach markets accessible downstream of Hardisty. Therefore additional transportation capacity from Edmonton to Hardisty is required.

7 Muse noted that except for 2016 when the Enbridge Athabasca Twinning Project is commissioned, the inbound pipeline capacity to Hardisty is less than what is required to maintain a reasonable operating margin for operational efficiency.

3.4 Ability to Finance

Views of Enbridge

In its Application, Enbridge estimated the total cost of the Project, inclusive of interest during construction, to be $814.8 million. At the hearing, Enbridge clarified that this is the cost without interest, and the total cost with interest is $844.3 million (in Canadian dollars).

Enbridge stated that the Project will be owned by Enbridge Pipelines Inc., a wholly-owned subsidiary of Enbridge Inc., who will fund the Project with funds from an existing bank credit facility, internally generated cash flows, term debt from Canadian capital markets, as well as from equity contributions from Enbridge Inc. Enbridge Pipelines Inc. is rated A- by Standard & Poor's Services and A by Dominion Bond Rating Services. Enbridge submitted that its abandonment cost estimate, based upon its proposed methodology, was approximately $23 Million. This was later updated to $29 Million, in accordance with the Board's MH-001-2012 Decision on Abandonment Cost Estimates. Enbridge stated that, based upon preliminary financial assumptions, the toll impact from abandonment costs would be immaterial and will be subject to regular review and updated accordingly in pursuant to the Board's RH-2-2008 Decision.

Enbridge submitted that it maintains a General Liability insurance program on its various operations and assets. The insurance program is renewed annually and is consistent with coverage considered customary for its industry. Enbridge stated that the current year's coverage limit is $685 million and covers Enbridge's legal liability for third party property damage and injuries resulting from its operational activities, including such spills and breaks.

Enbridge noted that the rates of general liability insurance are not set by the Board or the government but by the insurers and the insurance industry themselves. However, Enbridge stated that if a spill situation occurred and the costs are in excess of its insurance, Enbridge would be responsible to cover those costs.

Views of Participants

No concerns were expressed by Participants regarding Enbridge's ability to finance the Project. The Landowners Group, expressed concerns regarding who would be responsible for the cleanup costs in excess of the insurance coverage if a spill occurred. The Landowners Group proposed a condition requiring that Enbridge provide assurance that it has enough insurance to cover the liability of spills.

Views of the Board

The Board is of the view that Enbridge has the ability to finance the construction of the Project and to place it into operation. The Board is also satisfied that Enbridge is addressing the Board's requirements regarding abandonment costs in accordance with the RH -2-2008 Decision.

The Board is satisfied at this time that Enbridge has insurance coverage and that this, combined with the financial capability of Enbridge Inc., gives Enbridge the ability to cover any costs should a spill situation occur.

Chapter 4

Facilities and Emergency Response Matters

The Board uses a risk-informed approach in requiring that NEB-regulated facilities and activities are safe and secure from their initial construction through to their abandonment. In consideration of the safety and security of proposed facilities, the Board assesses, at a conceptual level, whether the facilities are appropriately designed for the properties of the product being transported, the range of operating conditions, and the human and natural environment where the facilities would be located. Specific considerations include the company's approach to engineering design, integrity management, security, emergency preparedness, and health and safety.

When a company designs, constructs, operates or abandons a pipeline, it must do so in accordance with the *National Energy Board Onshore Pipeline Regulations* (OPR), the commitments made in its Application, and as otherwise agreed to during questioning or in its related submissions. The OPR references various engineering codes and standards including *Canadian Standards Association Z662-11 Oil and Gas Pipeline Systems* (CSA Z662-11). The company is responsible for ensuring that the design, specifications, programs, manuals, procedures, measures and plans developed and implemented by it are in accordance with the OPR.

On 24 April 2002, the Board issued a letter to all oil and gas companies under its jurisdiction setting out its expectations for appropriate and effective Emergency Preparedness and Response (EPR) Programs. With respect to emergency response matters, and in accordance with OPR Sections 6 and 32 to 34, the Board expects companies to develop and implement EPR management systems and programs for all aspects of their operations to minimize the effects of incidents and emergencies that have the potential to impact the health and safety of the public, company employees, property and the environment. The Board developed a set of expected elements for EPR Programs to aid companies in understanding the Board's expectation that NEB-regulated facilities are constructed in a manner that protects the environment, respects individual rights, are safe and perceived to be safe.

4.1 Description of Facilities

The Project includes the following:

- Construction and operation of the Edmonton to Hardisty Pipeline: a new 914.4 mm (Nominal Pipe Size 36) outside diameter crude oil pipeline, approximately 182 km in length, from Enbridge's existing Edmonton Terminal, near Edmonton, Alberta to its existing Hardisty Terminal, near Hardisty, Alberta;
- Construction and operation of five remotely operated sectionalizing valves along the proposed Pipeline RoW;
- Construction and operation of a new initiating pump station at the existing Enbridge Edmonton Terminal;
- Construction and operation of two new pump stations at each of Enbridge's existing Strome and Kingman stations; and

- Construction and operation of associated facilities and infrastructure at the existing Edmonton and Hardisty Terminals, including: interconnecting piping, receiving and sending traps, a new booster pump at the existing Edmonton terminal, electrical infrastructure, instrumentation controls, and supervisory control and data acquisition (SCADA) system equipment.

The Project would be designed to transport crude oil at a maximum operating pressure (MOP) of 9930 kilopascals, with a design capacity of approximately 127,190 m^3/d (800 thousand b/d).

4.2 Design, Construction, and Operation

In discharging its regulatory oversight responsibilities, the Board uses a risk-informed compliance verification approach so that companies identify and manage integrity-related hazards that may impact safety and the environment throughout the life cycle of a project. This life cycle approach follows the project from design through construction and operation, until the pipeline is abandoned. The adequacy, implementation and effectiveness of a company's commitments are verified by the Board through audits, inspections and meetings.

In addition, the Board may also perform ongoing monitoring of a company's compliance and incidents. This compliance approach is an integral part of the Board's continuous oversight of a company's pipeline and facilities. Accordingly, should a Certificate for the Project be issued, the Board would employ its normal compliance verification approach as a means of verifying that the company is meeting the commitments made in its Application, and as otherwise agreed to during questioning or in its related submissions.

4.2.1 Design

Codes and Standards

Views of Enbridge

Enbridge submitted that the Project would be designed, constructed and operated in compliance with the latest Board regulatory requirements. The primary applicable regulation is the OPR, which incorporates, by reference, CSA Z662-11.

4.2.1.1 Line Pipe and Joining

Views of Enbridge

Enbridge stated that line pipe for the Pipeline will be made of low carbon, high-strength, low alloy estimated Grade 483 (X-70) steel and will be manufactured using double submerged arc welding for the spiral seam welding process. The line pipe will be manufactured according to CSA Z245.1 standards. All facility piping will be made of low carbon, high strength, and low alloy steel.

Enbridge submitted that a quality management system (QMS) is in place for each pipe order to ensure the pipe manufacturer adheres to the purchase specifications and applicable codes and

standards. Enbridge noted that welding specifications and procedures will be developed and welders will be qualified in accordance with the requirements of OPR and CSA Z662-11.

4.2.1.2 Depth of Cover

Views of Enbridge

Enbridge stated that the Pipeline will generally have a minimum depth of cover of 0.9 m; for watercourses, paved roads/access road it will be 1.2 m; and for railway crossings, the minimum depth of cover will be 2 m.

In response to an information request submitted by the Landowners Group regarding trenching depth (depth of cover) to accommodate the use of more advanced (heavier) agricultural equipment, Enbridge submitted that it does not interfere with the ordinary cultivation of land by landowners. Enbridge indicated that it works with landowners to identify what equipment can safely cross pipelines and provides directly affected landowners with an Agricultural Vehicle and Equipment Screening Tool guideline that sets out the safe use of equipment to cross the Enbridge RoW. Enbridge noted that most conventional farming equipment is well within the limits for crossing safely and that trucks loaded according to highway standards should be able to cross safely. Enbridge indicated that in the event trucks are overloaded, it will guide individuals as to whether it is possible to cross through the RoW safely.

Views of Participants

BTSRA

The BTSRA indicated that depth of cover of the Pipeline should be at least 7 or more feet (2.1 m) to prevent any future frost heaves that may cause the pipe to rise to the surface. The BTSRA also indicated that if the Pipeline was buried deeper into the soil, it would prevent any potential interference with installation of fence posts and would be free from compaction.

4.2.1.3 Isolation Valves

Views of Enbridge

Enbridge submitted that the remotely-operated sectionalizing isolation valves will be installed along the proposed Pipeline in accordance with the requirements of CSA Z662-11 Clause 4.4. The locations of the valves will generally coincide with the locations of the existing valves along the existing Enbridge RoW. Enbridge further submitted that other factors considered in selecting the location of sectionalizing isolation valves include: public safety, environmentally sensitive areas, and operations and maintenance requirements.

Enbridge noted that the sectionalized segment is determined using the elevation profile and its definition of high consequence areas (HCAs), which includes water bodies such as the Battle River. Enbridge also noted that it models outflows in the event of a leak, and that the locations of the valves are selected such that flow into the HCAs are limited below Enbridge thresholds.

As per the Board's letter dated 19 July 2013, Enbridge submitted an engineering assessment with respect to isolation valves for the Project. Enbridge indicated that the engineering assessment report is based on a project-specific threshold amount of flow in the event of an incident of 1735 m^3 (15 thousand barrels). Enbridge further indicated that this threshold amount was chosen based on an analysis of existing pipelines of similar size and flow rate and with considerations for local HCAs and evaluation of local terrain.

Although Enbridge submitted that it does not consider the Battle River to be a major water course crossing as defined in Clause 4.4.8 of CSA Z662-11, it has committed to installing isolation valves on either side of the Battle River.

Views of Participants

No Participants expressed any concerns with respect to the overall design philosophy for the Project.

Views of the Board

Codes and Standards

The Board is satisfied that the general design of the Project is appropriate for the intended use. The Board is further satisfied that the Pipeline and associated facilities would be constructed in accordance with the widely accepted standards including OPR and CSA Z662-11, for their design, construction, location, and operation. The Board has decided that if a Certificate is issued, it will include a condition requiring Enbridge to design, construct and operate the Project in accordance with the specifications, standards, and other information referred in its Application, and as otherwise agreed to during questioning or in its related submissions (Certificate Condition 2, Appendix II; Order Condition 2, Appendix III).

Line Pipe and Joining

The Board is satisfied that the selected pipe grades are appropriate for the Project. The Board notes that Enbridge has a QMS in place that will require the pipe manufacturer to adhere to the purchase specification and applicable codes and standards.

Enbridge noted that welding specifications and procedures will be developed and welders will be qualified in accordance with the requirements of OPR and CSA Z662. The Board has decided to include a condition requiring Enbridge to file its field joining program for the Project with the Board at least 14 days prior to the start of any joining activity (Certificate Condition 13, Appendix II; Order Condition 10, Appendix III).

Depth of Cover

The Board notes that the proposed depth of cover design meets the CSA Z662-11 requirements, which in the Board's view is sufficient to accommodate ordinary agricultural practices. For heavy equipment and overloaded trucks, Enbridge committed to provide

directly affected landowners with an Agricultural Vehicle and Equipment Screening Tool guideline that sets out the safe use of equipment over the operating lines.

Isolation Valves

The Board notes that pursuant to CSA Z662.11, a company must perform an engineering assessment to determine the number and spacing of sectionalizing valves to be installed. The Board is satisfied with Enbridge's criteria used in its engineering assessment for selecting the number and location of isolation valves, the threshold amount of flow and its rationale for selecting this threshold amount, and the drain down volume plots for each proposed valve segment. The Board notes that Enbridge has committed to installing isolation valves on either side of the Battle River.

4.2.2 Construction

Views of Enbridge

Enbridge submitted that contractors will be required to adhere to all local safety regulations, and their own corporate safety manuals. Contractors will also be required to follow the most current edition of the Enbridge Contractor Safety Manual. Enbridge also indicated that qualified inspectors will inspect construction of the Project based on a documented inspection plan. Enbridge further submitted that inspectors will monitor contractor compliance with all applicable regulations and ensure that contractual requirements are met with respect to engineering design, construction, safety and environmental protection.

Enbridge stated that if landowners have any issues with any kind of construction practices, they can contact its land agents or construction monitors who would address those issues.

Enbridge stated that the joining program and non-destructive testing of welds will comply with the requirements of the OPR and CSA Z662-11.

Views of Participants

The BTSRA and the Landowners Group expressed concerns on various matters such as trenching machinery, soil handling and reclamation, weed and clubroot management, construction monitoring and adequacy of consultation. These issues are discussed in Chapters 5 and 8 of this Report.

Views of the Board

The Board is satisfied with Enbridge's commitments to follow safety regulations and its corporate safety manuals. Further, the Board acknowledges Enbridge's commitment in monitoring contractor compliance with respect to engineering design, construction, safety and environmental protection. The Board notes that Enbridge has committed to address all landowner concerns brought to their attention by the landowners. The Board notes that the joining program and non-destructive testing of welds will comply with the requirements of the OPR and CSA Z662-11.

4.2.3 Operation

Views of Enbridge

Enbridge noted that the Project will be operated in accordance with all applicable regulatory requirements, Certificate conditions, licences and existing Enbridge operating requirements. Further, all facilities associated with the Project will be monitored and operated from an existing Enbridge control centre. Enbridge stated that the Project will be integrated into the existing SCADA system to provide consistent and reliable communications. Enbridge uses a leak detection system called ATMOS Pipe, which will be applied to the Project.

Enbridge submitted that its existing control centre has a physically separate complete back up control centre. In the event that the primary control centre becomes unavailable, operators can take full control of the applicable pipeline systems from the backup control centre within one hour.

Enbridge indicated that its field maintenance and operations staff will ensure the safe and reliable operation of the equipment and facilities in accordance with Enbridge's Operation and Maintenance Procedures and its preventative maintenance program. Enbridge indicated that operation manuals of pipelines contain sensitive information and therefore cannot be released to the public.

Views of Participants

The BTSRA questioned Enbridge as to whether the operation manuals for the pipeline would be made available to the landowners.

Views of the Board

The Board has reviewed the information submitted for the operation of the Project and is of the view that the information is adequate. The Board is satisfied that the Project would be integrated into Enbridge's existing SCADA system. The Board notes that Enbridge will use ATMOS Pipe software for leak detection which is designed to meet and exceed the current requirements of OPR and CSA Z662-11. Additionally, pursuant to section 27 of the OPR, Enbridge would be required to regularly review and update its operation and maintenance manual which provides information and procedures to promote safety and environmental protection.

The Board notes that pipeline operation manuals are not typically released to the public and does not require Enbridge to do so.

4.2.4 Safety and Security

In accordance with the OPR and CSA Z246.1, regulated companies are required to implement mitigative and preventative measures for all risks posed by hazards and threats to the integrity of pipeline systems, the public and workers, and to the environment. The Board monitors a company's compliance with the Board conditions and with legislation during all stages of the construction and

operation of a project. The Board evaluates the need for specific compliance verification activities and determines whether an on-site inspection or review of the company's management systems is necessary. This includes an evaluation of a company's programs to address safety and security.

Views of Enbridge

In its Application, Enbridge submitted that safety inspectors will be on site during construction to ensure that all personnel follow safety procedures. Enbridge further submitted that contractors will be required to adhere to all local safety regulations, and their own corporate safety manuals; and contractors will also be required to follow the most current edition of the Enbridge Contractor Safety Manual.

In addition, Enbridge indicated that it will develop a construction traffic management plan to minimize, wherever possible, the effects of construction traffic on public and worker safety, municipal infrastructure, wildlife, and the environment. Enbridge stated that project specific safety training (e.g. traffic safety, staging area safety etc.,) will be provided to its construction personnel and contractors.

Enbridge further stated that its existing security management program and assessment processes currently used for all security plans and programs related to Enbridge systems will be updated to include the Project, as appropriate. Enbridge indicated that any security issues identified during construction will be managed under its security management program which includes:

- security policies and procedure manuals;
- regional security response plans;
- security vulnerability assessments;
- threat monitoring and analysis;
- physical security measures;
- monitoring, tracking and trending of security incidents; and
- training and support of operation personnel.

Enbridge further stated that physical security measures used at facilities include: perimeter fencing, intrusion alarms, surveillance systems and lighting. Enbridge indicated that it works with local and federal enforcement authorities, and industry associations to identify and monitor trends and issues related to security.

Views of Participants

No Participants expressed any concerns with respect to safety and security during construction activities for the Project.

Views of the Board

The Board is of the view that construction practices must address safety and security considerations. The Board has decided to include a condition requiring Enbridge to to file the following manual and reports with the Board:

- a construction safety manual for the Project (Certificate Condition 6a, Appendix II; Order Condition 5a, Appendix III); and
- bi-weekly construction progress reports (Certificate Condition 12, Appendix II) which include information on environmental, safety and security issues; issues of non-compliance; and measures undertaken for their resolution.

The construction safety manual and bi-weekly construction progress reports would facilitate the ongoing review by the Board of Enbridge's safety plans and performance.

The Board has decided to include a condition requiring Enbridge to confirm that a Project specific Security Management Plan (Certificate Condition 6c, Appendix II) has been developed. The Security Management Plan would facilitate the Board's review of Enbridge's security management approach with respect to the Project.

4.2.5 Pipeline Integrity

A management system, in general, is a framework of processes and procedures used by an organization to fulfill its objectives. It normally contains elements such as accountabilities, procedures for tasks, and tools for auditing and continuous improvement. Programs for integrity management may be part of a company's overall management system, or may be one of a series of independent programs. The primary goal of any integrity management program is to prevent leaks and ruptures caused by in-service degradation of a pipeline.

Views of Enbridge

Enbridge confirmed that the Project will be fully integrated into Enbridge's existing integrity management program (IMP). Enbridge submitted that the primary goal of its pipeline integrity program is to prevent leaks and ruptures. The principal objectives of its IMP are:

- ensure the safety of employees and public;
- protect the environment;
- strive to achieve zero failures;
- provide a reliable pipeline; and
- maintain the system as a long-life asset.

Enbridge noted that its pipelines are monitored to identify defects that may occur, and remedial action to be undertaken, in a planned approach to ensure the objectives of the IMP are realized.

Enbridge's approach to pipeline management is based on applying mitigative measures over the life cycle of the pipeline so that a constant base integrity level is maintained.

Enbridge indicated that appropriate design, construction and operation measures, combined with ongoing monitoring programs, are aimed at preventing corrosion and cracking that have the potential to cause deterioration of pipelines.

Enbridge plans to conduct In-Line-Inspection (ILI) baseline assessments within the first 2 years of Pipeline operation and plans include a budget for a reassessment inspection within 5 years of the baseline assessments. Enbridge further submitted that upon review of the baseline inspections, subsequent reassessment inspections will be selected to ensure that threats are identified and, if necessary, either repaired or removed before they can grow to a size that threatens the integrity of the Pipeline.

Views of Participants

BTSRA

The BTSRA expressed the need for landowners to be made aware of the increased risks due to so many pipelines located in the same corridor. The BTSRA also raised questions regarding the technology of monitoring the Pipeline.

Landowners Group

The Landowners Group argued that Enbridge should keep landowners informed on the condition of the Pipeline, percentage of corrosion, potential for any spill, and mitigation plans.

Views of the Board

The Board has reviewed the submitted information and is of the view that it is adequate. The Board notes that the Project would be integrated into Enbridge's IMP. The Board requires companies to develop, implement and maintain an IMP that anticipates, prevents, manages and mitigates conditions that could adversely affect safety or the environment. The IMP is a continuous improvement process and is applied throughout the lifecycle of a Project.

During the early stages of operation, an ILI provides important data on the integrity status of the pipeline. Comparing this baseline data with subsequent ILI runs enhances a company's ability to identify potentially threatening changes to the integrity of the pipeline. The Board is satisfied with Enbridge's plans to conduct ILI baseline assessments within the first 2 years of Pipeline operation and is of the view that ILI is a widely used best pipeline industry practice and state of art technology to monitor the condition of a Pipeline. The Board encourages Enbridge to provide information to landowners should any pipe integrity concerns arise on their lands.

4.3 Emergency Preparedness and Response

As noted in the introduction to this chapter, the Board issued a letter on 24 April 2002 to all its regulated oil and gas companies that sets out its expectations for appropriate and effective EPR programs. In addition, and in accordance with OPR sections 6 and 32 to 34, companies are required to develop and implement EPR management systems and programs for all aspects of their operations.

Enbridge indicated that a comprehensive emergency response plan is in place for all its pipelines and the plan includes many preventative measures, including advance education for the public regarding pipeline crossings and encroachment issues. Enbridge stated that this plan will be modified to incorporate the Project. Enbridge further stated that it communicates regularly with stakeholders along its pipeline corridors, including landowners, government agencies and emergency response officials (such as police and health care providers). Enbridge's pipelines are marked at regular intervals with emergency contact information, in accordance with regulatory requirements. Enbridge submitted that it has a 24-hour emergency call centre equipped to respond efficiently and effectively to public concerns or emergency situations.

Views of Participants

The BTSRA and the Landowners Group expressed concerns related to the adequacy of the landowner emergency preparedness and response consultation and training prior to and during the construction phase of the Project. Please refer to subsection 5.1.1 for more details.

Views of the Board

The Board is of the view that the measures proposed by Enbridge to address emergency preparedness and response are appropriate. Should the Project be approved, the Board reminds Enbridge that it must submit updates related to this Project, to its EPR program as required by section 32 of the OPR.

The Board has decided to include a condition requiring Enbridge to submit a Field Emergency Preparedness and Response Plan (Certificate Condition 6b, Appendix II; Order Condition 5b, Appendix III) that it would implement in the event an emergency occurs during construction activities.

Chapter 5

Public Consultation

The Board's expectations for an applicant regarding public consultation are set out in the Board's Filing Manual. Applicants are expected to undertake an appropriate level of public involvement, commensurate with the setting, nature and magnitude of a project. The Board considers public involvement to be a fundamental component during each phase in the life cycle of a project (that is, project design, construction, operation and maintenance, and abandonment) in order to address potential impacts of that project. This chapter addresses Enbridge's public consultation program. Enbridge's Aboriginal engagement and consultation are discussed in Chapter 6, Aboriginal Matters.

5.1 Enbridge's Public Consultation Program

5.1.1 Consultation with Landowners, Residents, and Other Potentially Affected People

Views of Enbridge

In its Application, Enbridge stated that its Corporate Social Responsibility Policy recognizes the value and importance of public consultation and stakeholder engagement as a key component of sound business practice.

The stated principles of Enbridge's public consultation program for the Project are:

- to engage stakeholders early in the development and planning process to learn about community goals and perspectives and take those into account in decision making;
- to seek stakeholder input on projects or activities potentially affecting them and on the associated environmental and social impact assessments;
- that the public consultation processes will be transparent and open;
- to endeavor to learn about and respect local, historical and traditional knowledge and economies; and
- that the consultation program will reinforce Enbridge's social licence to operate by enhancing its corporate brand as a responsible corporate citizen.

In designing its public consultation program for the Project, Enbridge took into account the nature and type of work to be undertaken in order to determine potential stakeholder impacts as well as expected topics and levels of public interest. A primary factor in the design of the consultation program was that the Project be designed to parallel an existing Enbridge pipeline RoW, which means that the majority of the landowners have been in a relationship with Enbridge for over 40 years. Enbridge noted that this pre-existing relationship with local landowners and regional stakeholders is viewed as being generally positive. Enbridge further noted that its consultation program complements public awareness programs currently in place for existing pipeline operations in the area being carried out by Enbridge.

The consultation program sought to identify landowners and stakeholders potentially affected by the Project. Enbridge identified landowners, tenants and residents within 200 m of the proposed RoW and 1500 m of the proposed pump stations. Enbridge also identified municipal, provincial and federal agencies, commercial third parties and non-government organizations (NGOs) for consultation.

Beginning in August 2012, Enbridge used a variety of methods to provide Project information to interested and potentially affected groups and individuals. These included personal meetings, mail outs of Project information packages and subsequent Project updates, public notice advertisements in local newspapers, Project website and open houses. In addition, a toll-free Project telephone line and e-mail address provided an additional avenue for stakeholders to seek information, ask questions and express concerns. Enbridge submitted that through the public consultation processes, it was able to learn about landowner concerns with respect to the Project and worked together with those landowners to resolve concerns regarding impacts to farming operations, routing, land access, tree removal, drainage and traffic and weed management.

Enbridge indicated it hosted a commercial information session in Calgary in December 2012 in order to provide all commercial parties an opportunity to hear more about the Project and raise any questions with Enbridge representatives. Following the information session, Enbridge prepared and distributed a "question and answer" document that addressed all of the matters raised by attendees at the open house and in subsequent discussions, including matters related to batch sizes and Pipeline connectivity at Hardisty. Enbridge did not receive any follow-up requests on these matters, and no industrial or commercial third parties have raised any other concerns specifically related to the Project.

Enbridge confirmed that it would continue to actively work with stakeholders to resolve issues and respond to questions as they arise, and maintain communication and consultation through its Public Awareness Program, including consulting and sharing information related to the design of projects, pipeline safety and integrity, emergency procedures, and environmental protection practices. In response to the Landowners Group's concerns raised with respect to consultation involving Enbridge's emergency response plan for operations, Enbridge confirmed that the Public Awareness Program includes information for landowners on how to recognize an incident, what to do in the case of an emergency, and appropriate contact information. Enbridge also confirmed that it would engage and provide copies of the construction emergency response plan to landowners, if requested, after it had been developed by the contractor for the Project.

Specifically in response to the BTSRA's concerns regarding landowners receiving information regarding Enbridge's environmental protection plan and pre- and post-construction environmental surveys, Enbridge submitted that most environmental studies and management plans are public documents available on the NEB website; however, if a landowner needed assistance in locating or interpreting the information, Enbridge would make every effort to do so.

In response to the Landowners Group's concerns regarding the employment of construction monitors to act as a liaison between landowners and Enbridge, Enbridge expressed that hiring multiple monitors for each spread had been discussed for the Project, however it typically depends on landowner interest as that would be the pool of people selected from to fill the positions.

Views of Participants

Both the BTSRA and the Landowners Group raised concerns with respect to how the Project would impact their ranching and agricultural operations. For further information regarding these concerns, refer to Chapter 9, subsection 9.1.3, Disruption to Agricultural Activities.

BTSRA

The BTSRA was of the view that consultation was inadequate. It expressed a need for Enbridge to consult landowners on its Environmental Protection Plan (EPP), and on its pre- and post-construction environmental surveys. Specifically, the BTSRA asserted that most landowners wish to be informed about the results of all environmental field studies and any changes to the EPP, and subsequent construction techniques, resulting from these studies. The BTSRA also submitted that due to the number of pipelines within the existing Enbridge Mainline corridor, there is a greater need for landowners to be provided with information about the associated risks.

Landowners Group

The Landowners Group expressed concerns regarding the adequacy of Enbridge's landowner consultation process, submitting that Enbridge did not initiate its consultation program with landowners early enough. It further stated that many landowners did not receive Enbridge's Project information packages in a timely manner due to a mail-out error. The Landowners Group indicated that contrary to Enbridge's view that the Project open houses were generally well-attended, the open houses suffered low public turn-out as a result of the error.

The Landowners Group also expressed concerns regarding Enbridge's ongoing consultation program stating that "it used to be good" and is "very degraded". The Landowners Group expressed that there is a "feeling of non-trust because of the actions of not being listened to and then having been told one thing and then a reaction or an action is totally different". Specifically, the Landowners Group raised concerns regarding Enbridge's Public Awareness Program and lack of consultation with respect to providing landowners updated information regarding Enbridge's emergency response plan. It also stated a need for landowners to be engaged in the development of the emergency response plan during the construction of the Project.

The Landowners Group argued that any Certificate issued include several conditions requiring Enbridge to engage landowners on matters such as importing soil and gravel fill, soil separation and sampling, and weed management; to hire qualified third parties, where necessary; and to provide documentation acknowledging all its consultation and work. The Landowners Group also argued for a condition requiring Enbridge to allow its chosen pipeline contractor(s) to employ construction monitors to act as a liaison between the contractors and the landowners.

5.1.2 Consultation with Government Stakeholders

Views of Enbridge

Enbridge consulted with various regulatory agencies, including those involved in environmental management, in order to identify public concerns associated with the Project.

Enbridge's consultation with provincial and federal agencies was initiated in June 2012, with follow-up meetings held with several of the agencies in September and October 2012. Consultation involved collecting baseline environmental data, discussion of any Project concerns and recommended mitigative measures.

In September 2012, Enbridge contacted municipal agencies and NGOs that it anticipated would have environmental or socio-economic interests in the Project area. Municipal and NGO representatives were informed of the location and construction schedule of the Project. Representatives were requested to identify any concerns and provide information that might influence the routing, construction or operation of the Project. Enbridge committed to further discussion with municipalities regarding concerns related to the construction schedule, waste management plan, weed management plan, and traffic management strategy. Enbridge has also committed to provide updates on a regular basis to interested agencies and arranging subsequent meetings, when warranted, with affected municipalities in the Project area.

Views of Participants

No Participants expressed any concerns with respect to consultation with government stakeholders.

Views of the Board

The Board promotes the undertaking, by regulated companies, of an appropriate level of public involvement that corresponds with the nature, setting and magnitude of each project. This recognizes that public involvement is a fundamental component during each phase throughout the life cycle of a project in order to address potential impacts.

The Board notes the concerns expressed by the BTSRA and the Landowners Group regarding a number of issues with respect to stakeholder consultation. The Board further notes that Enbridge has committed to seek to address all outstanding landowner concerns prior to construction and to ongoing consultation through its Public Awareness Program. The Board has decided to include a condition requiring Enbridge to create and maintain records to track Project-related landowner complaints or concerns and how they have been addressed (Certificate Condition 4, Appendix II). The Board expects that stakeholder concerns will be addressed as they arise through the life cycle of the Project.

The NEB Filing Manual encourages companies to create plans for future consultation and follow-up throughout the life cycle of a project which may include activities such as public awareness programs, continuing education, and consultation with persons regarding proposed operations that may potentially affect them. This also includes the requirement

that Enbridge fulfill section 35 of the OPR for a Continuing Education Program for emergency response. The Board encourages Enbridge to follow through on its commitment to provide any further information landowners may require about the Project and its potential impacts, including information related to the design of projects, environmental management strategies and the proposed measures to protect the safety of nearby residents and the public.

The Board is of the view that a company's relationship with landowners is important. The Board reminds Enbridge that it is an obligation that should be taken seriously. The Board encourages Enbridge to meet and share information about the Project, discuss all outstanding concerns, and seek mutually agreeable solutions. The Board acknowledges that landowners view themselves as stewards of the land, and as such have a significant role in ensuring the land is used appropriately and respectfully. The Board notes Enbridge's receptiveness to consider and explore the role of construction monitors for the Project. The Board encourages Enbridge to utilize such a role to gain relevant field knowledge and experience about the land and facilitate open communication among landowners, the contractor and Enbridge.

The Board is of the view that Enbridge's public consultation program was adequate given the scale and setting of the Project, along with the consideration that Enbridge has had pre-existing relationships with the majority of local landowners and regional stakeholders for several decades. Enbridge identified potentially affected landowners and stakeholders, and used appropriate methods to provide Project information and to gather concerns and comments which it used in the design of the Project.

The Board notes the concerns raised by the BTSRA and the Landowners Group on soil management and reclamation, and weed management and control. These issues are discussed in Chapter 8 of this Report.

Although consultation with Government stakeholders was initiated early in the process, the Board expects Enbridge to continue its efforts to engage in and maintain effective and timely consultation activities with Government stakeholders, as appropriate, throughout the life cycle of the Project.

Chapter 6

Aboriginal Matters

The Board takes Aboriginal interests and concerns into consideration before it makes any recommendation that could have an impact on those interests. Whenever a project has the potential to impact the rights or interests of Aboriginal groups, the Board obtains as much evidence as possible in that regard so that it may assess and consider the potential impacts in its recommendation. The Board relies on its Enhanced Aboriginal Engagement (EAE) initiative, as described below, and its hearing process, so that its record is as complete as possible.

Before filing a project application, applicants are required by the Board's Filing Manual to identify, engage and consult with potentially affected Aboriginal groups. The Board's Filing Manual requires applicants to consult with potentially impacted Aboriginal groups early on in the planning of the project and report on these activities to the Board. Further, the Filing Manual requires that an application include detailed information on any issues or concerns raised by Aboriginal groups or that are otherwise identified by the applicant.

Aboriginal groups are encouraged to engage with applicants so that their concerns are identified early, considered by the applicant, and potentially resolved before the application is filed. The Board also encourages Aboriginal groups who are directly impacted by a proposed project, or have information and expertise that could help the Board gain a greater understanding of the project under consideration to apply to participate in the hearing process. If accepted to participate in the hearing, there are various ways for Aboriginal groups to contribute. These can include providing letters of comment, written evidence, oral testimony by elders and members of Aboriginal groups, conducting cross-examination of the Applicant and other Participants, and presenting final argument.

6.1 Participation of Aboriginal Groups in the Regulatory Process

The Board's EAE initiative aims to provide proactive contact with Aboriginal groups that may be affected by a proposed project, and to help Aboriginal groups understand the Board's regulatory process and how to participate in that process. The Board reviews the completeness of the list of potentially affected Aboriginal groups identified in the proponent's Project Description filed with the Major Projects Management Office and the Board. The Board may suggest to the applicant any necessary revisions. The Board then sends letters to each potentially impacted Aboriginal group on the revised list, informing them of the project as well as the Board's regulatory role in respect of the project, and offers to provide further information on the hearing process. Following issuance of these letters, Board staff follow up, respond to questions or conduct information meetings, where requested.

The Board carried out its EAE activities for the Project between the receipt of the Application in December 2012 and April 2013. The Board sent a letter to 14 potentially-affected Aboriginal communities and organizations. The letter discussed the Board's hearing process, its PFP and included a summary of the Project. The following five Aboriginal groups requested meetings on the

Board's hearing process: Alexis Nakota Sioux Nation, Ermineskin Tribe, Métis Nation of Alberta – Region 4, Montana First Nation and Stoney Nakoda First Nation. The Board met with each of these groups.

Tsuu T'ina Nation (TTN) applied to participate as Intervenor in the OH-001-2013 proceeding and was granted Intervenor status by the Board. No other Aboriginal groups submitted an Application to Participate in the proceeding.

On 25 September 2013, TTN filed a letter with the Board stating that through its engagement activities with Enbridge and the Board's regulatory review process, all issues of concern arising from the Project had been resolved. TTN withdrew its objection from the proceeding and indicated its support for the Project.

6.2 Aboriginal Engagement by Enbridge

Views of Enbridge

In its Application, Enbridge submitted that its Aboriginal Engagement Program for the Project is based on its enterprise-wide Aboriginal and Native American Policy, which establishes the key principles for guiding Enbridge's relations with Aboriginal communities.

Enbridge's principles and goals for its Aboriginal Engagement Program include:

- engaging with Aboriginal communities early in the process, and continuing engagement throughout the regulatory process as well as through the construction and operations phases of the Project;
- developing consultation protocols with potentially affected Aboriginal communities;
- providing information in a timely, ongoing and respectful manner;
- providing opportunities to Aboriginal communities to identify issues and potential Project impacts; and
- providing opportunities for discussion and seeking joint issue resolution.

Enbridge used the following criteria to determine which Aboriginal communities to engage with:

- the proximity of Aboriginal communities to the Project area (Enbridge engaged First Nations whose reserve lands are up to 75 km from the Project area and Métis communities within the region traversed by the Project);
- Enbridge's knowledge of the Aboriginal communities in the area based on its 50-plus-year history of operating pipelines and facilities in Alberta and adjacent to the proposed RoW; and
- guidance from provincial and federal government agencies.

Enbridge stated that it would engage with any Aboriginal group or community that had not previously identified itself as being impacted by the Project. Enbridge initially engaged in Project discussions beginning in August 2012 with the following Aboriginal communities:

- Alexander First Nation
- Alexis Nakota Sioux Nation
- Enoch Cree Nation
- Ermineskin Tribe
- Louis Bull Tribe
- Montana First Nation
- Paul First Nation
- Samson Cree Nation
- Métis Nation of Alberta - Region 2
- Métis Nation of Alberta - Region 4

Based on the Aboriginal groups identified by the Board, Enbridge expanded its Aboriginal Engagement Program to include the following First Nations:

- Saddle Lake Cree Nation
- Stoney Nakoda First Nation
- Tsuu T'ina Nation

Enbridge submitted that introductory letters and information packages were sent to identified First Nations and Métis communities, and that subsequent and consultation activities have included mail-outs of letters and Project information materials, face-to-face meetings, telephone calls and on-going issue tracking and follow-up activities.

Enbridge further submitted that its consultation activities with Aboriginal groups are on-going. Enbridge indicated that it is committed to continue Aboriginal engagement activities for the purposes of exchanging information with respect to the Project, responding to inquiries, hearing and responding to any concerns that may arise, and participating in ongoing dialogue about the Project, including potential economic and business opportunities.

Views of Participants

TTN raised concerns regarding Enbridge's consultation activities and stated that Enbridge's Application had not adequately considered impacts to TTN members' rights and interests. More specifically, it stated that Enbridge had not utilized the expertise of TTN members' in connection with the Project area in determining how to mitigate the potential impacts of the Project and suggested that further discussions between TTN and Enbridge on traditional knowledge, land use and occupancy information, mitigation opportunities and cultural protocols for using the land would be worthwhile.

6.3 Impacts of the Project on Aboriginal Groups

Views of Enbridge

Enbridge submitted that it anticipates that the impacts of the Project on traditional land uses (TLU), if any, will be minimal. The current land tenure and land use precludes, to a large extent, the possibility of traditional activities being practiced on the lands in question. The Pipeline RoW was designed to be primarily alongside and contiguous to an existing Enbridge pipeline RoW and other linear disturbances for which no potential adverse impacts to traditional land and resource uses have been identified to date. The Pipeline RoW is within lands that are predominantly privately-held, rather than on Crown land. Over 91 per cent of all tracts crossed by the Pipeline are held by private landowners in fee simple, the majority of which are in use for agricultural purposes. Only 1 per cent

of all tracts crossed are provincial Crown land while the other 8 per cent are administered by Alberta Infrastructure and is largely made up of the Transportation Utility Corridor (TUC).

Enbridge submitted that it has received a number of proposals from Aboriginal communities interested in undertaking an assessment or review of TLU of the Project area. These groups included: Alexander First Nation, Enoch Cree Nation, Ermineskin Tribe, Louis Bull Tribe, Montana First Nation and Samson Cree Nation. Of those proposals, Ermineskin Tribe has completed a review of traditional uses within the Project area which identified traditional plants and animal habitat within 500 m of the proposed RoW and has no outstanding concerns pertaining to the Project. In regard to the other proposals, Enbridge has agreed to an initial scope of work with Enoch Cree Nation that includes a meeting and mapping session to identify any potential specific impacts or concerns related to the Project and is waiting to receive a revised proposal from the other groups.

Enbridge also noted that it received a report from TTN on traditional uses which indicated that wildlife, vegetation and spiritual/historical sites are in proximity to the proposed RoW.

Enbridge noted that the mitigation measures outlined in the Application, including the Environmental and Socio-Economic Assessment (ESA), should mitigate all potential impacts that have been identified to date. In response to specific concerns raised by Ermineskin Tribe, Enbridge indicated its willingness to consider transplantation and relocation of certain plant species according to the First Nation's directions and instructions. Enbridge committed that it will continue to work with engaged Aboriginal communities on the Project and will notify the Board of any Project specific concerns and any resulting mitigation that arise from further Aboriginal consultation that is not otherwise included in material already filed with the Board.

Views of Participants

TTN expressed concerns that although the Application provided Project impacts on wildlife and wildlife habitat, it did not address the impact that construction and operation of the Project would have on the TTN members' Aboriginal and Treaty rights. TTN noted in its written evidence that it continues, to date, to exercise collective rights to harvest plants, fish and wildlife on unoccupied Crown lands, other lands within TTN's traditional territory and certain portions of the Project area. In its affidavits, TTN members detailed the gathering of plants for traditional and medicinal use, and performing cultural ceremonies in the Project area.

TTN subsequently filed a letter with the Board, indicating that all issues of concern in the Project area had been resolved and expressing its support for the Project.

Views of the Board

The Board requires applicants to initiate early discussions and consultation with Aboriginal groups potentially affected by a proposed project. This allows for early exchange of information and for matters of concern to be considered at the onset of the Project and through the design phase. The extent of the consultation that needs to be carried out is determined, to a large extent, by the nature, scope and setting of a project.

The Board is satisfied that all Aboriginal groups potentially affected by the Project were provided with sufficient information about the Project and had an opportunity to make their views known to Enbridge and the Board. The Board expects Enbridge to continue to consult with interested Aboriginal groups throughout the life cycle of the Project.

The Board notes Enbridge's commitments to continue consultation with interested Aboriginal groups, and to develop and review all mitigation pertaining to TLUs with affected Aboriginal groups. The Board further notes Enbridge's commitment to continue to work with Aboriginal groups in completing various TLU investigations that would identify any additional issues or concerns. The Board has decided to include a condition requiring Enbridge to file with the Board a final report outlining TLU investigations for the Project (Certificate Condition 11, Appendix II). In this regard, the Board would expect Enbridge to provide, in particular, a summary of any effects of the Project on the current use of lands and resources for traditional purposes identified in the investigations, including a description of how these concerns or issues have been or will be addressed by Enbridge.

The Board notes that almost all the lands required for the Project are previously disturbed, primarily privately owned and used mainly for ranching and agricultural purposes. The Board also notes Enbridge's comprehensive program of measures for reducing or eliminating potential Project impacts on resources that may be used for traditional purposes by Aboriginal groups. Therefore, the Board is of the view that any impacts to the use of lands and resources for traditional purposes would be effectively addressed by Enbridge.

Chapter 7

Land Matters

The Board's Filing Manual sets out the Board's expectations for lands information to support an application for a Certificate under section 52 of the NEB Act. Applicants are expected to provide a description and rationale for the proposed route of a pipeline, the location of associated facilities, and the permanent and temporary lands required for a project. Applicants are also expected to provide a description of the land rights to be acquired and the land acquisition process, including the status of land acquisition activities.

7.1 Routing

Views of Enbridge

The existing Enbridge pipeline mainline corridor runs in a generally straight line southeast from the Edmonton Terminal to the Hardisty Terminal. The Pipeline will transport crude oil for 182 km, initiating at the Enbridge Edmonton Terminal at NW 32-52-23 W4M and terminating at the Enbridge Hardisty Terminal at NW-19-42-09 W4M. Enbridge designed the route to be constructed alongside and contiguous to existing linear disturbances for approximately 91.3 per cent of its length.

Enbridge submitted that the existing Enbridge pipeline system between Edmonton and Hardisty is predominantly located within an agricultural setting. Routing of the Pipeline was influenced by Enbridge's commitment to avoid, where feasible, any environmentally sensitive areas. This includes limiting the amount of new land disturbance and maximizing operational efficiency. Installing the Pipeline adjacent to the existing pipeline RoW, where feasible, was Enbridge's preferred strategy to meet these goals.

Enbridge noted that several route deviations greater than 60 m from the mainline RoW were a result of reducing the impact on existing infrastructure, such as well sites and residences, and facilitating crossings of roads, utilities and other facilities.

Views of Participants

No Participants expressed any concerns with respect to the general route of the Project.

7.2 Land Requirements

Views of Enbridge

Enbridge indicated that 91 per cent of the 383 tracts of land required for the Project are privately-held and the remaining tracts crossed are provincial Crown (1 per cent) and TUC (8 per cent).

Enbridge submitted that in order to construct, maintain and operate the pipeline, new permanent easement and temporary workspace (TWS) would be required as existing easements cannot be used for the proposed pipeline due to spacing constraints needed to safely install the new pipeline. New permanent RoW, varying in widths from 10 to 13 m, would be acquired with an additional amount of TWS, measuring 35 m in width. The total combined width of the RoW and TWS is 45 m.

Enbridge proposed additional land rights would also be required at the existing Strome pump station and for the five sectionalizing valve sites along the proposed pipeline RoW. Enbridge indicated that additional land rights may also be required on a temporary basis for construction infrastructure such as stockpile sites, access roads and staging areas. Enbridge further noted that three stockpile sites are anticipated for construction. The specific requirements for such land rights will be identified as construction planning and detailed engineering and design progress.

Views of Participants

No Participants expressed any concerns with respect to the land requirements of the Project.

7.3 Land Rights and Land Acquisition

Views of Enbridge

Enbridge initiated land acquisition activities in October 2012. In accordance with subsection 87(1) of the NEB Act, Enbridge has served notices on all of the 378 affected landowners. Enbridge noted that a detailed property sketch identifying the proposed pipeline route over lands for each landowner, as well as a copy of the Board's publication entitled *Pipeline Regulation in Canada: A Guide for Landowners and the Public* accompanied each notification package. Enbridge submitted sample documents of section 87 notices to landowners and section 86 agreements for the various types of land rights required. Enbridge submitted that it has been and will continue to work with landowners to inform them of the timing and methods of construction.

In response to the land acquisition agreement concerns expressed by the BTSRA and the Landowners Group, Enbridge argued that while the NEB Act does have some requirements, easement agreements are essentially contracts between the company and the landowners involved. Enbridge's position is that its acquisition of approximately 95 per cent of the permanent RoW from privately held land tracts as of early December 2013 attests to the success of its acquisition program and acceptability of the agreement.

Views of Participants

BTSRA

The BTSRA argued that Enbridge's land acquisition agreements contain restrictive clauses, confusing wording and should be written in plain language in order to be better understood by landowners. The BTSRA further proposed that to balance power between Enbridge and landowners, facilitate timely reporting and create a safer, more compliant operation, three additional clauses should be added to Enbridge's easement agreements, stipulating that Enbridge: will adhere to all applicable legislative statutes and its own policies and practices; will not threaten or penalize any staff or contractor if they decide to inform landowners, the Board or any other party of

Enbridge's non-compliance with Project requirements and commitments; and will reimburse any party which is successful in enforcing compliance with project requirements and commitments. The BTSRA also argued that annual compensation be paid to the landowners for this Project in one lump sum every five years, with a review of the amount of annual compensation every five years.

Landowners Group

The Landowners Group indicated concerns related to the restrictive nature of some of the clauses in the land acquisition agreements, specifically clauses which precluded landowners from opposing the Project, participating in any future proceedings, or receiving further Project information or updates once executed. The Landowners Group suggested that Enbridge should create a more transparent and collective land acquisition process rather than singling out each landowner individually and using a "divide and conquer approach". The Landowners Group also argued that Enbridge should adequately inform landowners about a project and the conditions in an easement agreement, and advise them of their rights when its land agents approach landowners and ask them to sign easement agreements.

Views of the Board

The Board finds designing and constructing the majority of the Enbridge pipeline route alongside and contiguous to existing linear disturbances to be reasonable given that it would minimize the environmental and socio-economic impacts of the Project. With respect to the route deviations, the Board notes that the rationale for the deviations was to reduce the potential for land use conflicts and therefore finds the criteria and the proposed deviations to be appropriate. The Board is of the view that the proposed general route is acceptable.

It is the Board's view that a total RoW varying in width from 10 to 13 m, with an additional amount of TWS measuring 35 m in width, is necessary to allow for the construction and operation of the Project in a safe and efficient manner. Therefore, the Board finds that Enbridge's anticipated requirements for permanent and temporary land rights are acceptable.

With respect to concerns expressed regarding the land acquisition process by the BTSRA and the Landowners Group, the Board acknowledges the complexity of information that landowners must contemplate when considering these documents and the imbalance of power in easement agreement negotiations. The Board encourages Enbridge to use plain language in its easement agreements wherever possible, and be mindful when dealing with individuals who are unrepresented by legal counsel.

The Board finds the sample land rights documentation and acquisition process proposed by Enbridge acceptable. The Board notes that land acquisition agreements must comply with section 86 of the NEB Act, which includes options for landowners to receive compensation by one lump sum payment, or by annual/periodic payments over a period of time. Section 86 also provides for the review, every five years, of the amount of compensation payable in the case of annual/periodic compensation. Ultimately it is the parties voluntarily signing the agreement who control their final contents.

Chapter 8

Environment and Socio-Economic Matters

Under the NEB Act, the Board considers environmental protection as a component of the public interest. When making its recommendations, the Board is responsible for assessing the environmental and socio-economic effects throughout the life cycle of the Project. This chapter represents the Board's environmental assessment (EA) for the Project under the NEB Act.

The Board commenced its assessment of environmental and socio-economic matters in December 2012, upon Enbridge's filing of the Project Application. At that time, the Project was not designated by the *Regulations Designating Physical Activities* under the *Canadian Environmental Assessment Act, 2012* (CEAA, 2012). On 24 October 2013, amendments to the *Regulations Designating Physical Activities* came into effect specifying that all new pipeline construction over 40 km in length required an environmental assessment under the CEAA, 2012. However, transition provisions stated that projects that had commenced an assessment were exempt from the amended regulations. Therefore, an EA under the CEAA, 2012 was not required for the Project.

8.1 The Board's EA Methodology

In assessing the environmental and socio-economic effects of the Project, the Board used an issue-based approach as set out in its Filing Manual.

This assessment begins with: (a) a description of the Project (subsection 8.2), (b) a description of the setting and the environmental and socio-economic elements within that setting (subsection 8.3), and (c) a summary of those environmental and socio-economic concerns raised by the public (subsection 8.4). Based on these, the Board identified Project-environment interactions expected to occur (subsection 8.5; Table 8-3). If there were no expected Project-environment interactions or interactions that would be positive or neutral then no further examination was deemed necessary.

The Board then assessed the potential adverse environmental and socio-economic effects, as well as the adequacy of the Applicant's proposed environmental protection strategies and mitigation measures (subsection 8.5). Subsection 8.5.3 discusses the extent to which standard mitigation is relied on to mitigate potential adverse effects. In subsection 8.5.4, the Board provides a detailed analysis for issues that are of public concern or of environmental consequence, and that may require additional mitigation. For each issue considered in detail, Views of the Board are provided and the Board assesses whether further mitigation is recommended by way of condition on any potential Project authorization, in order to ensure any potential environmental and socio-economic effects would not be significant. Where there are any residual effects remaining after mitigation, cumulative effects are considered in subsection 8.6. The Board's conclusion on significance is given in subsection 8.7.

8.2 Project Details

Chapter 4 of the Report provides a general description of the Project. In addition, the following table provides further details on Project components and activities relevant to the EA.

Table 8-1: Project Components and/or Activities

Project Components and/or Activities
Construction Phase – Timeframe: First quarter of 2014 for the Section 58 Facilities and August 2014 to early 2015 for the Section 52 Facility
▪ Road upgrading and temporary new access road and bridge construction
▪ RoW clearing and preparation – typically 45 m wide, including an approximately 10-13 m wide permanent easement and the remainder to be used as TWS
▪ Full RoW topsoil salvage for most of the route; reduced salvage widths (blade width or trench area) to be used where reduced disturbance is recommended to mitigate potential environmental or socio-economic impacts (e.g., native prairie, rare plant occurrences, where requested by landowner to avoid ornamental trees, windbreaks, etc.) or during frozen soil conditions
▪ Where the Project parallels the Line 2 Replacement project, the topsoil salvaged from the Line 2 Replacement project would be left windrowed and set back to the edge of the Project RoW. Topsoil replacement and reclamation of the combined footprint (55 m in total) would be completed together upon the completion of the Project.
▪ Grading, stringing, welding, trenching, lowering-in and backfilling
▪ Horizontal directional drilling (HDD) or boring of roads, watercourses, wetlands and other selected features where appropriate and economically feasible, with associated use of additional TWS
▪ Construction of watercourse crossings outside of restricted activity periods (RAPs)
▪ Hydrostatic test water (approximately 90 thousand m^3) to be withdrawn from Joseph Lake and the unnamed wetland at NW 10-43-10 W4M and released within the same watershed from where it was withdrawn
▪ RoW clean-up and reclamation
▪ Construction of three new electrically-driven pump stations and related facilities, installed within the boundaries of existing Enbridge terminals/stations, except for at the Enbridge Strome station (which would require approximately 1.08 ha of additional land).
▪ Five sectionalizing valve sites for a total of 0.18 ha of land required
▪ Potential construction of a short approach road and new power supply (provided by a third party) for any of the new valve sites
Operation Phase – Timeframe: Service life of the Project (estimated in-service date: early 2015)
▪ Periodic vegetation cutbacks along the RoW and adjacent facilities to maintain visibility during inspection patrols, facilitate access during maintenance and reduce fire risk
▪ Ongoing vegetation maintenance and weed control
▪ Aerial and ground patrols for visual pipeline inspections
▪ Maintenance digs as required in the event a suspected pipeline integrity problem is identified
Abandonment Phase – Timeframe: At the end of the service life of the Project
▪ Pursuant to the NEB Act, an application would be required to abandon the facilities, at which time the environmental effects would be assessed by the Board

8.3 Environmental Setting

Land Use

- The Project is located in the Central Parkland Subregion of the Parkland Natural Region and the Dry Mixedwood Subregion of the Boreal Forest Natural Region. The Project route is primarily agricultural, with isolated patches of forest, wetlands, watercourses and associated riparian areas.

- The Project route traverses the TUC for approximately 9 per cent of the total route, provincial Crown land for approximately 1 per cent, and the remaining 90 per cent of its length is privately-owned land. The Project is contiguous to existing linear disturbances for approximately 91 per cent of its length.

- The Project is located adjacent to the Line 2 Replacement Project route for approximately 38 km from the Edmonton Terminal at KPT 0 (NW 32-52-23 W4M) to a valve site in KP 33.8 (SW 1-50-22 W4M). For this distance, the two pipelines share a 35 m common construction RoW.

- The Project route traverses two conservation easement areas in Strathcona County, near KPE 14.4 (SE 35-51-23 W4M; at the Mill Creek crossing) and near KP 13.0 (SE 36-51-23 W4M). The Project route also crosses a Protective Notation (PNT): an Ungulate Protection Area administered by Alberta Environment and Sustainable Resource Development (AESRD) located at approximately KP 30.5 to KPHD 0.5 (NW 11-50-22 W4M).

Physical Environment and Soils

- The Project route lies within the Eastern Alberta Plains physiographic region, traversing gentle to moderate slopes for the majority of the route.

- The Project is located in a primarily agricultural area in the Black Soil Zone dominated by Chernozemic and Solonetzic soils. Most soils along the Project route are considered to have moderate wind erosion hazard when the protective vegetation is disturbed, and slight to moderate water erosion hazard.

Vegetation

- The Project route lies within the Aspen Parkland Ecoregion of the Prairies Ecozone and crosses the Central Parkland Natural Subregion of the Parkland Natural Region and the Dry Mixedwood Natural Subregion of the Boreal Forest Natural Region.

- Native vegetation covers approximately 13 per cent of the Project route. These areas include deciduous forests (aspen and balsam poplar), coniferous forests (black spruce), mixedwood forests, riparian areas (including wetlands, drainage features and watercourses) and existing pipeline RoW (agronomic species).

- During rare plant surveys for the Project, 19 species designated by Alberta Conservation Information Management System were observed including American water horehound, annual skeletonweed, clammy hedge-hyssop, crystalwort, few-flowered aster, golden saxifrage, lance-leaved loosestrife, leafy pondweed, low cinquefoil, marsh felwort, marsh gentian, Parry's sedge, prairie wedge grass, purple-fringed Riccia, Riccia liverwort, salt-marsh sand spurry, sand nut-grass, sandhills cinquefoil and yellow cress. Two of these species (Riccia liverwort and American water-horehound) are located on the banks of the Battle River and within the permanent RoW.

- During weed surveys for the Project, one prohibited noxious weed (nodding thistle) and ten noxious weeds (bladder campion, common baby's breath, common tansy, common toadflax, creeping thistle, leafy spurge, ox-eye daisy, perennial sow-thistle, scentless chamomile, tall buttercup) were observed along the Project route.

- Clubroot is a soil-borne disease that affects canola and other crops in the mustard family. It is considered a pest under the *Agricultural Pests Act*. All counties have identified potential for clubroot disease to be encountered by the pipeline route.

Water Quality and Quantity

- The Project route traverses four named watercourses (i.e., Mill Creek, Goldbar Creek, Irvine Creek and the Battle River), two unnamed tributaries to Iron Creek, one unnamed tributary to the Battle River, one unnamed drainage, one unnamed ditch, two unnamed fish-bearing wetlands and numerous nonfish-bearing wetlands and drainages across two watersheds, the North Saskatchewan watershed and the Battle River Watershed.

- The Project route traverses the Battle River, a known navigable watercourse. The remaining watercourses do not support navigation.

- The Aquifer Vulnerability Index in the aquatics Regional Study Area (RSA) is rated Low to Moderately-Low, while the groundwater quality risk for contaminants from agricultural activities ranges from 0.28 to 0.45 on the index (with 1 being the highest risk and 0 being the lowest risk). A total of 1286 groundwater wells were identified within a 1 km radius of the pipeline route, with the majority being used for domestic purposes. There are 25 wells within the Project Footprint. Two springs were recorded at approximately KP 143.3 (SW 16-44-12 W4M) and at approximately KP 167.7 (NW 3-43-10 W4M) during previous construction in 1998.

Aquatic Species

- The Project route includes nine water crossings of fish-bearing watercourses (Mill Creek, Goldbar Creek, Irvine Creek, Battle River, two unnamed tributaries to Iron Creek, one unnamed tributary to the Battle River, one unnamed fish-bearing drainage and an unnamed channelized ditch) and two crossings of fish-bearing wetlands.

- The Battle River is a mapped Class C watercourse with an instream RAP from April 16 to June 30. The other watercourses and the wetlands have no instream RAP.

- The fish communities in the North Saskatchewan River and the Battle River near the Pipeline route are a mixed assemblage containing both coldwater (e.g., rainbow trout) and coolwater (e.g., northern pike and walleye) species. These rivers and their tributaries are dominated by coolwater species.

- No sportfish or federally- or provincially-listed fish species were captured or observed during fish sampling conducted in 2012. The following fish species were captured or observed during fish sampling on the Battle River: lake chub, longnose sucker, white sucker, trout-perch, and an unidentified large-bodied fish species.

- One fish species, lake sturgeon, listed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), is known to occur in the North Saskatchewan River in the vicinity of the aquatics RSA. Two species, sauger and northern redbelly dace, listed as 'sensitive' in Alberta are also known to occur in the North Saskatchewan River near the Project route. Northern redbelly dace is also known to occur in the Battle River near the Project route crossing. In addition, spoonhead sculpin, listed as 'may be at risk' in Alberta, is known to occur in the North Saskatchewan River.

Wetlands

- The Project is located within the Continental and Transitional Mid-Boreal Wetland regions, transitional between the Prairie region to the south and the Boreal region to the north. There are 235 wetlands (16.67 km or 17.75 ha) traversed by the Project RoW, as of 2013 field surveys, comprising approximately 9 per cent of the permanent RoW.

Number of Wetlands Traversed by the Project	
Class I (ephemeral)	4
Class II (temporary)	56
Class III (seasonal)	124
Class IV (semi-permanent)	20
Class V (permanent)	6
Shrubby swamp	23
Treed swamp	2

- An additional 92 wetlands are located only within the proposed boundaries of the TWS, extra workspace and access roads. Due to access constraints, there may be an additional six wetlands encountered along the proposed permanent RoW.

- The proposed pump station at the Edmonton Terminal (NW 32-52-23 W4M) is located at the site of a deep marsh (Class IV) wetland complex. There are no wetlands in proximity to the facilities at Kingman station, Strome station or the Hardisty Terminal.

Wildlife and Wildlife Habitat

- Wildlife habitat along the Project route includes isolated patches of forest, wetlands, watercourses and associated riparian areas.

- There are 17 federally-listed wildlife species at risk with potential to occur along the Project route.

Species at Risk (Federal)	
Endangered	
Piping plover	*Species at Risk Act* (SARA) Schedule 1 and COSEWIC
Little brown myotis	COSEWIC
Threatened	
Chestnut-collared longspur	SARA Schedule 1 and COSEWIC
Common nighthawk*	SARA Schedule 1 and COSEWIC
Ferruginous hawk	SARA Schedule 1 and COSEWIC
Loggerhead shrike*	SARA Schedule 1 and COSEWIC
Sprague's pipit*	SARA Schedule 1 and COSEWIC
Bank swallow	COSEWIC
Barn swallow*	COSEWIC
Bobolink	COSEWIC
Special Concern	
Long-billed curlew	SARA Schedule 1 and COSEWIC
Short-eared owl*	SARA Schedule 1 and COSEWIC
Yellow rail*	SARA Schedule 1 and COSEWIC
American badger*	COSEWIC
Baird's sparrow	COSEWIC
Horned grebe*	COSEWIC
Tiger salamander	COSEWIC

*denotes those species observed (or recent evidence of) during 2012-2013 wildlife field work

- Additionally, the following provincially-listed wildlife species at risk were observed along the Project route: American bittern, American white pelican, black tern, great blue heron, green-winged teal, lesser scaup, pied-billed grebe, sandhill crane and sora.

- Several other federally- and provincially-listed species at risk (collectively referred to as "species at risk" for the purposes of this report) have been reported within 2 km of the Project route.

- Other wildlife species observed along the Project route include several mammals (mule deer, white-tailed deer, moose, coyote, American badger, squirrel species, northern pocket gopher, mouse species, beaver, muskrat), several bird species (including raptors, 50 species of passerines, and various waterfowl, shorebirds and gulls), wood frog and boreal chorus frog.

- There is a Sensitive Raptor Range for bald eagle from approximately KPT 0.0 to KP 19.1 (NW 32-52-23 W4M to SE 17-51-22 W4M) and KP 28.9 to KP 90.0 (NE 15-50-22 W4M to SE 11-47-17 W4M) along the Project route.

- There is a provincial PNT along the Project route, noted as an Ungulate Habitat Protection Area and administered by AESRD (PNT 030043, located at NW 11-50-22 W4M or approximately KP 30.5 to KPHD 0.5).

- Of the proposed facilities, the Edmonton Terminal provides suitable wildlife habitat while the Strome station and the Hardisty Terminal do not. The wetland complex at the Edmonton Terminal is considered to be marginal wildlife habitat by Enbridge because it is surrounded by a highly developed petrochemical corridor and cultivated lands, although it is used by some species that are more resilient to human disturbance and has the potential to provide habitat for horned grebe. At Kingman station, barn swallows have the potential to nest since they use buildings as nesting sites; however, there are no records of barn swallows nesting at this facility site.

Atmospheric and Acoustic Environment

- The reported annual air quality values at the four monitoring stations within 5 km of the Edmonton Terminal are below the Alberta Annual Ambient Air Quality Objectives. Air quality in the area surrounding the Project facilities is primarily a function of anthropogenic sources of emissions such as vehicle and rail traffic, agricultural activity and surrounding industrial facilities.

- Ambient noise is primarily caused by anthropogenic sources, including roads, airports and railways. At the Edmonton Terminal, ambient noise is also caused by the surrounding industrial facilities.

Human Occupancy and Resource Use

- Lands along the proposed route have been used as a pipeline corridor since the 1950s and are mostly located on privately-owned lands for agricultural use and some oil and gas activity.

- The proposed route occurs on lands with various hunting seasons for elk, moose, white-tailed and mule deer, cougar, black bear and various game birds and fish.

- The proposed route traverses one golf course and one campground.

- An extensive infrastructure network for highways, airports, railways, accommodation, emergency services, pipeline and transmission lines exist throughout the RSA.

Heritage Resources

- A targeted Historical Resources Impact Assessment has identified the following within the Project Footprint: four previously recorded Pre-contact campsites; one previously recorded rock art site, seven previously unknown archaeological sites and four historic sites with standing structures.

Traditional Land and Resource Use

- The Project traverses privately-held and Crown lands within the Treaty 6 area. Lands along the proposed route have been used as a pipeline corridor since the 1950s and are mostly located on privately-owned lands in agricultural use with some oil and gas activity.

- Enbridge and the Board identified a total of 14 Aboriginal communities and organizations in Alberta that may be potentially affected by the Project, and they were all contacted.

- Tsuu T'ina Nation stated that it continues to practice TLU activities in proximity to the proposed route, including plant gathering for subsistence, medicinal, ceremonial and spiritual purposes, as well as the harvesting of fish and wildlife. It also stated there are culturally significant sites within the Project area.

- Ermineskin Tribe has completed a review of traditional uses within the Project area and identified traditional plants and animal habitat within 500 m of the proposed RoW.

- Louis Bull Tribe and Samson Cree Nation have both identified a potential archeological site in the Hardisty region and Samson Cree Nation advised of a potential culturally significant site near Hardisty.

8.4 Environmental Issues of Public Concern

The Board received submissions from Participants who raised particular concerns related to environmental issues. The Table below summarizes the topics of concern.

Table 8-2: Environmental Issues Raised By Participants

Participant	Environmental Issue(s) Raised	Addressed in Section
Tsuu T'ina Nation (TTN)	Potential impacts on traditional land use and treaty lands Potential impacts to plant and animal species Potential impacts to water	8.5.4.5
Battleford Trail Surface Rights Association (BTSRA)	Reclamation of the permanent RoW and TWS Cleaning and disinfection protocols to prevent the spread of clubroot	8.5.3 8.5.4.1 8.5.4.2

Participant	Environmental Issue(s) Raised	Addressed in Section
	Construction practices and soils handling to prevent rutting or subsidence and maintain full crop yields Appropriate soil removal and replacement Disruption of farming operations, including impacts from depth of cover	
Landowners Group	▪ The width of the corridor footprint ▪ Lines of communication open to the landowner around environmental concerns ▪ Securement and inspection of weed-free fill material ▪ Weed management ▪ Clubroot ▪ Hydrostatic testing and water quality ▪ Availability of soil sampling results to the landowner ▪ Soil management ▪ Disruption of farming operations, including impacts from depth of cover over pipeline and the safety zone ▪ Sanitary concerns impacting landowner health ▪ Best practices for lakes, streams and water ▪ Spill prevention ▪ Reclamation of permanent RoW and TWS	8.5.3 8.5.4.1 8.5.4.2
Environment Canada (EC)	▪ Species at risk ▪ Wildlife and wetland surveys ▪ Migratory birds ▪ Wetlands	8.5.3 8.5.4.3 8.5.4.4

8.5 Environmental Effects Analysis

8.5.1 Interactions and Potential Adverse Environmental Effects

The table below identifies the expected interactions between the Project and the environment, and the potential adverse environmental effects resulting from these interactions.

Table 8-3: Project-Environment Interactions

	Environmental Element	Description of Interaction (or Why No Interaction is Expected)	Potential Adverse Environmental Effect	Standard Mitigation[8] or Mitigation Discussed in:
Bio-Physical	Physical Environment	▪ Clearing, grading, trenching and backfilling during construction of pipeline and station/terminal facilities	▪ Terrain instability ▪ Altered topography at locations where cut slopes are too steep to be replaced without creating areas of instability, or at trenched watercourse crossing locations	Standard Mitigation (8.5.3)
	Soil and Soil Productivity	▪ Clearing, grading, trenching and backfilling during construction of pipeline and station/terminal facilities ▪ Extended storage of topsoil between construction of the Enbridge Line 2 Replacement project and completion of Project construction	▪ Decreased topsoil productivity through mixing with subsoils, trench sloughing, or mixing with saline/sodic soil layers ▪ Loss of topsoil through wind erosion or surface water erosion ▪ Loss of soil structure and decreased productivity through compaction or rutting ▪ Increased stoniness in surface soils ▪ Pulverization of soil or sod layer ▪ Encountering previously contaminated soils ▪ Trench subsidence ▪ Erosion or contamination of soil from release of hydrostatic test water on land ▪ Spread of clubroot disease between fields	Standard Mitigation (8.5.3) 8.5.4.1 8.5.4.2
	Vegetation	▪ Clearing of vegetation, grading, trenching and backfilling during construction of pipeline and station/terminal facilities ▪ Human and equipment traffic during maintenance activities	▪ Changes to native vegetation composition ▪ Loss or alteration of rare plant populations or rare ecological communities ▪ Weed introduction and spread ▪ Removal of ornamental trees, windbreaks or	Standard Mitigation (8.5.3) 8.5.4.2

8 The concept of standard mitigation is interpreted in Section 8.5.3 below.

	Environmental Element	Description of Interaction (or Why No Interaction is Expected)	Potential Adverse Environmental Effect	Standard Mitigation[8] or Mitigation Discussed in:
		▪ Vegetation management activities during operations	shelterbelts	
	Water Quality and Quantity	▪ Pipeline construction (clearing, grading, trenching, drilling, watercourse crossings, stringing pipe, lowering, backfilling, hydrostatic testing, cleanup and final reclamation) and operation may disrupt surface and groundwater flows and quality	▪ Localized alteration of natural flow patterns ▪ Disruption of groundwater flow where springs are encountered ▪ Reduction in surface water quality due to suspended solids during instream construction of isolated crossings or contingency open cut crossings, erosion from approach slopes or an inadvertent drilling mud release during construction of HDD crossings ▪ Alteration or contamination of aquatic environment as a result of withdrawal and release of hydrostatic test water	Standard Mitigation (8.5.3)
	Aquatic Species and Habitat	▪ Pipeline construction (clearing, grading, trenching, drilling, watercourse crossings, stringing pipe, lowering, backfilling, hydrostatic testing, cleanup and final reclamation) at watercourse crossings	▪ Clearing or disturbance of riparian vegetation during construction, maintenance and operation of the Project ▪ Alteration of instream habitat at trenched crossings and temporary vehicle crossings ▪ Increased suspended sediment concentrations ▪ Fish mortality or injury ▪ Temporary blockage of fish movement during isolated watercourse crossings ▪ Interbasin transfer of aquatic organisms at hydrostatic test source/release locations	Standard Mitigation (8.5.3)
	Wetlands	▪ Pipeline construction (clearing, grading, trenching, lowering-in, hydrostatic testing, valve installation, backfilling, cleanup and final reclamation) within proximity of wetlands ▪ Permanent removal of wetland at	▪ Alteration of wetland habitat function ▪ Alteration of wetland hydrological function ▪ Loss or reduction of wetland water quality function ▪ Permanent loss of wetland habitat, hydrology and	8.5.4.3

	Environmental Element	Description of Interaction (or Why No Interaction is Expected)	Potential Adverse Environmental Effect	Standard Mitigation[8] or Mitigation Discussed in:
		Edmonton Terminal	water quality functions at Edmonton Terminal	
	Wildlife and Wildlife Habitat	▪ Clearing of vegetation, grading, trenching, watercourse and wetland crossings, lowering pipe and backfilling during construction of pipeline and facilities ▪ Use of heavy equipment during construction ▪ Traffic during operations and maintenance	▪ Reduced habitat effectiveness as a result of fragmentation, creation of edges, or sensory disturbance ▪ Alteration of wildlife habitat ▪ Changes to wildlife movement ▪ Wildlife ▪ Displacement of wildlife and other sensory impacts at the Edmonton Terminal	Standard Mitigation (8.5.3)
	Species at Risk and Related Habitat	▪ Traversing of potential habitat for species at risk	▪ Effects (as listed above under "Wildlife and Wildlife Habitat") on Sprague's pipit, loggerhead shrike, ferruginous hawk, yellow rail and horned grebe, as indicator species, and their habitats	8.5.4.4
	Atmospheric Environment	▪ Operation of heavy equipment and vehicles during construction ▪ Operation of the proposed pump stations ▪ Traffic during operations and maintenance	▪ Release of air contaminants from fuel combustion ▪ Increase in air emissions, fugitive dust and smoke ▪ Greenhouse gas (GHG) emissions from equipment during construction and site-specific maintenance activities ▪ Increase of indirect GHG emissions from consumption of electric power generated from fossil fuels to operate the pump stations	Standard Mitigation (8.5.3)
	Acoustic Environment	▪ Equipment traffic during construction ▪ Drilling activity (HDD) during construction ▪ Traffic during operations and maintenance ▪ Operation of pump stations	▪ Increase in noise from equipment during construction and site-specific maintenance activities ▪ Noise from operations of pumps at Edmonton Terminal, Kingman station and Strome station	Standard Mitigation (8.5.3)

	Environmental Element	Description of Interaction (or Why No Interaction is Expected)	Potential Adverse Environmental Effect	Standard Mitigation[8] or Mitigation Discussed in:
Socio-Economic	Human Occupancy/Resource Use (including Fisheries)	▪ Clearing, grading, trenching and backfilling during construction of pipeline and station/terminal facilities, and existence of pipeline could interact with agricultural land use ▪ Use of equipment and vehicles during construction and operations	▪ Disruption of farming and ranching operations and land uses ▪ Disruption to campground and golf course ▪ Disruption of outfitting, hunting and fishing activities	Standard Mitigation (8.5.3)
	Heritage Resources	▪ Clearing, grading, trenching and backfilling during construction of pipeline and station/terminal facilities	▪ Disruption of previously unidentified heritage resource sites	8.5.3.3
	Current Traditional Land and Resource Use	▪ Clearing, grading, trenching and backfilling during construction of pipeline	▪ Disturbance of site-specific TLU identified during ongoing engagement ▪ Disruption of traditional activities during construction	8.5.4.5
	Navigation and Navigation Safety	▪ Pipeline construction (isolating, trenching, drilling, watercourse crossings, stringing pipe, lowering, backfilling, hydrostatic testing, cleanup and final reclamation) at watercourse crossings ▪ Installation of a temporary clear span crossing	▪ Interference with navigation during construction	Standard Mitigation (8.5.3)
	Social and Cultural Well-being	▪ Increase in vehicular traffic during construction ▪ Increase in workforce during construction	▪ Temporary alteration of community life during construction	Standard Mitigation (8.5.3)
	Human Health/Aesthetics	▪ Use of equipment and vehicles during construction ▪ Clearing, grading, trenching and backfilling during construction of pipeline and station/terminal facilities ▪ Operation of the pump stations	▪ Disruption to local residents and land users from increased air emissions, noise levels and potential impacts to surface water and ground water (refer to relevant sections above) ▪ Alteration of viewscape during construction and at pump stations facilities	Standard Mitigation (8.5.3) 8.5.3.5

	Environmental Element	Description of Interaction (or Why No Interaction is Expected)	Potential Adverse Environmental Effect	Standard Mitigation[8] or Mitigation Discussed in:
Other	Accidents/Malfunctions	▪ Pipeline break or leak during pipeline operations ▪ Pipeline repair or replacement during operations ▪ Equipment and vehicle traffic during construction and operations ▪ Spills of hazardous material (e.g., hydraulic fluid, motor oil, gasoline, antifreeze) ▪ Fire ▪ Release of mud during HDD	▪ Soil contamination from spot spills or leaks ▪ Reduction of ground or surface water quality resulting from a spill ▪ Contamination of riparian and instream habitat from spills or release of drilling mud ▪ Contamination of wetlands from spills or product release ▪ Disturbance of vegetation due to a spill or from associated clean-up and reclamation activities ▪ Effects of accidents and malfunctions on wildlife ▪ Damage to foreign utilities	Standard Mitigation (8.5.3)
	Effects of the Environment on the Project	▪ Flooding ▪ Wildfire ▪ Changing weather trends	▪ Loss of depth of cover due to flooding and erosion at watercourses ▪ Damage from wildfire ▪ Effects on scheduled maintenance activities ▪ Spread of pests that may affect vegetation	Standard Mitigation (8.5.3)

8.5.2 Mitigation of Potential Adverse Environmental Effects

In its Application, Enbridge has identified routine design and standard mitigation to mitigate most of the potential adverse environmental effects identified in Table 8-3. Enbridge identified general and site-specific measures based on current industry-accepted standards, consultation and engagement with regulatory agencies, and professional knowledge of its assessment team. The reader is referred to Enbridge's Application and supporting documentation including its draft EPP for details on all of Enbridge's proposed mitigation measures.

Where there are outstanding issues regarding key environmental elements, or the applicant's proposed mitigation may not be sufficient and additional mitigation may be necessary, a detailed analysis is presented in subsection 8.5.4.

8.5.3 Standard Mitigation

The Board recognizes that many adverse environmental effects are resolved through standard mitigation. Standard mitigation refers to a specification or practice that has been developed by industry, or prescribed by a government authority, that has been previously employed successfully and is now considered sufficiently common or routine that it is integrated into the company's management systems and meets the expectations of the Board.

Among the mitigation strategies to avoid or minimize the effects of the Project, Enbridge is relying in part on minimizing the disturbance footprint by selecting a route parallel to existing RoWs, using existing access roads where possible, implementing an environmental education program during construction, and environmental inspection during and post construction. In order to mitigate effects of the Project on water quantity and quality and aquatic species and habitat, Enbridge will follow the standard mitigation outlined in its EPP and will follow provincial Code of Practices and Department of Fisheries and Oceans Canada (DFO) Standard Operating Policies, including measures in the applicable Operational Statements and any approvals that may be obtained. Project effects on navigation and navigation safety at the Battle River will be mitigated using standard mitigative measures based on Transport Canada's Minor Works and Waters Ministerial Order under the former *Navigable Waters Protection Act* (NWPA). In addition, standard mitigation is proposed to avoid or minimize potential adverse environmental effects on the terrain and topography of the area, soils, native vegetation including rare plant populations and ecological communities, wetlands, wildlife, atmospheric and acoustic environments, and human receptors (as identified in Table 8-3).

To confirm that all general and site-specific mitigation measures are appropriate and will be implemented according to their intent, the Board has decided to include the following conditions.

8.5.3.1 Certificate Condition 7 and Order Condition 6 - EPP

The Board will require Enbridge to file an updated, Project-specific EPP to communicate all environmental protection procedures and mitigation measures to employees, contractors and regulators. The Board notes Enbridge's commitment to make the document available to any landowner upon request. The document would also be publicly available on the Board's website under "Regulatory Documents".

The commitments made in the EPP should be as clear and unambiguous as possible to minimize errors of interpretation. In cases where there may be multiple ways of achieving the desired outcome, it is helpful to state the goal, mitigation options, and clear decision-making criteria for choosing which option to apply under what circumstances. Where a mitigation option is mandatory (e.g., abiding by an instream RAP), it should be clearly stated as such. Updated Environmental Alignment Sheets are also to be included with the EPP.

The Board will require Enbridge to file an updated EPP 60 days prior to commencement of construction of the Section 52 Facility, and an updated EPP 45 days prior to commencement of construction of the Section 58 Facilities, in order to allow sufficient time for an effective review process.

Views of Enbridge

Enbridge confirmed that the objective or ideal goal is to replace topsoil back to the condition that is equivalent to the surrounding land. All permanent RoW and TWS used would be surveyed annually for five years, and compared against baseline assessments created pre-construction. Enbridge provided the results of pre-construction site assessments in its Application and supplemental information.

Views of Participants

During the hearing, the BTSRA made it clear that the quality of reclamation and soil replacement was of concern to landowners. The BTSRA requested that Enbridge prepare a pre-construction site assessment of the RoW and TWS to make sure that all soils are restored to the same condition after construction. The Landowners Group also stated that equal treatment should be given to both the RoW and TWS with respect to reclamation.

Views of the Board

The Board is satisfied with Enbridge's surveys completed to date in terms of providing an assessment of pre-construction conditions on the RoW and TWS. In order to better evaluate the success of subsequent post-construction reclamation, the Board will require Enbridge to provide a reclamation plan for each land use type crossed (such as cultivated land, forest, wetland, etc.) as part of the EPP for the Project. The reclamation plans should clearly identify the condition to which Enbridge intends to reclaim and maintain the right-of-way as described through measurable goals, and would apply equally to the permanent RoW and TWS. Subsequent post-construction monitoring (subsection 8.5.3.4) would then compare the state of reclamation observed in the field with the approved reclamation plans.

The EPPs for both the Section 52 Facility and the Section 58 Facilities would be filed with the Board for approval, and thus would be available and transparent to landowners.

8.5.3.2 Certificate Condition 9 and Order Condition 7 - Environmental Commitments Tracking

Enbridge committed to create an Environmental Commitments Tracking Table during the pre-construction phase which would be regularly updated with information on permit and approval conditions, commitments made in the environmental and socio-economic assessment, and commitments made during the regulatory review and approval process.

The Board has decided to include a condition requiring that Enbridge file with the Board and make available and maintain the Environmental Commitments Tracking Table on their own Project website for transparent reporting on the status of commitments to be fulfilled during construction and operations.

8.5.3.3 Certificate Condition 10 and Order Condition 8 - Heritage Resources

Should any previously unidentified resource sites be encountered during construction of the Project, activity at the site would be stopped, the Heritage Resources Discovery Contingency Plan would be implemented and the appropriate regulatory agencies notified.

In addition to this standard mitigation, the Board will require Enbridge to file with the Board copies of its correspondence from Alberta Culture confirming that Enbridge has obtained archaeological and heritage resource permits and clearances, and a statement indicating how Enbridge intends to implement any recommendations provided by the provincial department.

8.5.3.4 Certificate Condition 14 and Order Condition 11 - Post-Construction Environmental Monitoring Reports

Enbridge committed to follow a post-construction environmental monitoring program during the first five complete growing seasons to assess reclamation, revegetation, drainage restoration, erosion control and any weed problem areas along the RoW. Monitoring will include vegetation monitoring, soils assessments, wetland and watercourse monitoring.

The measurable goals for reclamation that Enbridge identifies in the Project EPP (subsection 8.5.3.1) would be used as the baseline for evaluating success in the post-construction monitoring reports.

The Board has decided to include a condition requiring that the post-construction monitoring reports be submitted to the Board after the first, third, and fifth complete growing seasons following the commencement of operation.

Views of Enbridge

Enbridge submitted that post-construction monitoring reports for the Section 58 Facilities at the Kingman station, Strome station and Hardisty Terminal (aside from the post-construction noise surveys, which are addressed in Order Condition 12, Appendix III) are anticipated to have little to no value because the sites are (or would be) covered with gravel and form part of existing industrial sites and air emissions would not be increased. At the Edmonton Terminal, there would be some temporary disturbance outside of the terminal boundaries for the installation of

interconnecting piping. Therefore, Enbridge suggested either striking the condition from the Order or considering alternative wording to specify that monitoring would take place on the temporarily disturbed land and would not continue to be required at locations where issues are resolved in the previous report.

Views of the Board

The Board agrees with Enbridge that a full, detailed post-construction monitoring report would be of limited value for gravelled industrial facilities. Where the Board does see value in post-construction monitoring of the Section 58 Facilities is for lands used as TWS; for weed encroachment in and around the graveled stations, especially where new gravel was imported; for any potential alterations in local surface drainage around the facilities such as ponding or runoff erosion; and for any potential impacts on wildlife and species at risk that may make use of the built structures at the stations or nearby wetlands (e.g., barn swallow, horned grebe). The Board agrees that should all issues be entirely resolved in a post-construction monitoring report, subsequent post-construction monitoring reports would not be necessary. The Board has modified the condition accordingly.

8.5.3.5 Order Condition 12 - Post-Construction Noise Surveys (Edmonton Terminal, and Kingman and Strome Pump Stations)

Enbridge committed to comply with the Alberta Energy Regulator (AER), formerly Energy Resource Conservation Board, Noise Directive 038 or, where compliance with AER Directive 038 is not reasonably practical due to pre-existing noise conditions at the respective site(s), will achieve a zero net increase in sound levels from the sites. The Board has included a condition in the Order requiring that Enbridge file with the Board the results of post-construction noise surveys conducted at the Edmonton Terminal, and the Kingman and Strome pump stations demonstrating compliance with AER Directive 038.

8.5.4 Detailed Analysis of Key Environmental Issues

There are five issues explored in detail in the following subsections. Table 8-4 specifies the definitions for criteria used in evaluating the significance of residual effects.

Table 8-4: Definitions of the Criteria Used to Evaluate the Significance of Residual Effects

Criteria	Rating	Definition
All criteria	Uncertain	When no other criteria rating descriptor is applicable due to either lack of information or inability to predict.
Frequency (how often would the interaction that caused the effect occur)	Accidental	Rare and unplanned occurrence over the assessment period.
	Single	One time event within any phase of the Project life cycle.
	Multiple	Multiple occurrences during any phase of the Project life cycle.
	Continuous	Continuous through any phase of the Project life cycle.

Criteria	Rating	Definition
Duration (duration of the effect)	Short-term	Adverse environmental effect duration is in the order of months or limited to the proposed construction.
	Medium-term	Adverse environmental effect duration is in the order of a few years.
	Long-term	Adverse environmental effect would remain evident throughout the planned operation or beyond the life cycle of the Project.
Reversibility	Reversible	Adverse environmental effect expected to return to baseline conditions within the life cycle of the Project.
	Possible	Adverse environmental effect may or may not return to baseline conditions within the life cycle of the Project.
	Irreversible	Adverse environmental effect would be permanent, or would last in the order of a few generations.
Geographic Extent	Project Footprint	Effect would be limited to the area directly disturbed by the Project development, including the width of the RoW and the TWS.
	LSA	Effect would generally be limited to the area in relation to the Project where direct interaction with the biophysical and human environment could occur as a result of construction or reclamation activities. This area varies relative to the receptor being considered (e.g., 2 km wide corridor centered on the Project Footprint for wildlife).
	RSA	Effect would be recognized in the area beyond the LSA that might be affected on the landscape level. This area also varies relative to the receptor being considered (e.g., 30 km wide corridor centered on the Project Footprint).
Magnitude	Low	Effect is negligible, if any; restricted to a few individuals/species or only slightly affects the resource or parties involved; and would impact quality of life for some, but individuals commonly adapt or become habituated, and the effect is widely accepted by society.
	Moderate	Effect would impact many individuals/species or noticeably affect the resource or parties involved; is detectable but below environmental, regulatory or social standards or tolerance; and would impact quality of life but the effect is normally accepted by society.
	High	Effect would affect numerous individuals or affect the resource or parties involved in a substantial manner; is beyond environmental, regulatory or social standards or tolerance; and would impact quality of life, result in lasting stress and is generally not accepted by society.
Evaluation of Significance	Likely to be significant	Effects that are either: (1) of high magnitude; or (2) continuous, long-term, irreversible, and of RSA geographic extent.
	Not likely to be significant	Any adverse effect that does not meet the above criteria for "significant".

8.5.4.1 Soils and Soil Productivity

Background/Issues and Views of Participants	Potential Adverse Environmental Effects: ▪ Decreased topsoil productivity through mixing with subsoils, trench sloughing, or mixing with saline/sodic soil layers ▪ Loss of topsoil through wind erosion or surface water erosion Throughout the hearing process, the Landowners Group expressed its concerns regarding the separation and correct replacement of soil layers. The Landowners Group requested that it be a condition of the Certificate that Enbridge engage the landowner in how soils will be separated and restored and that all soil management practices will maintain the integrity of the soil profile and that documentation is provided to acknowledge such. The BTSRA also had concerns regarding the replacement of topsoil during reclamation so it would be equal to or better than the original, and recommended that Enbridge should stop working when the soils are wet to prevent compaction. Additionally, the BTSRA described its preference of construction methods including digging the trench with a rounded bottom bucket and packing the subsoil over the pipe with a wheel type packer in order to prevent some subsidence and provide full crop yields in future years. For the 38 km portion of the pipeline that parallels the proposed Line 2 Replacement project, Enbridge indicated that it proposes to leave the topsoil salvaged and windrowed for the period between Line 2 construction (August 2013) and the start of Project construction in August 2014. Topsoil replacement and reclamation of the combined 55 m footprint would then be conducted together upon the completion of the Project.
Proposed Mitigation	With respect to the separation and correct replacement of soil layers, Enbridge committed to following the mitigation as outlined in its draft EPP submitted with its Application, including: ▪ Following appropriate contingency measures developed for issues potentially encountered during topsoil salvage (e.g., poor colour separation between topsoils and subsoils, stony soils, uneven surfaces, high winds); ▪ Ensuring separation between topsoil and subsoil piles and, where workspace on the RoW is limited, using physical barriers (e.g., tarps, straw, snow) to separate topsoil from subsoil; ▪ Clearly identifying the topsoil piles and grade spoil piles with signs or staking where the topsoil/subsoil colour change is not obvious to reduce the risk of confusion at the time of replacement; ▪ Endeavouring to keep a tight construction spread so the subsoil material would only be stockpiled for a short period of time, thereby reducing the opportunity for mixing with topsoil; ▪ Having reclamation specialists conduct post-construction monitoring to monitor for potential issues or concerns (e.g., admixing, soil compaction, poor vegetation establishment) so that remedial measures can be implemented where concerns are identified; ▪ Implementing a wet/thawed soils contingency plan which identifies under what conditions work would be; and ▪ Implementing measures to compact the backfill in the trench to reduce trench settlement, which may include use of specialized equipment. Enbridge confirmed that all topsoil would be stored on top of topsoil, and all subsoil would be stored on top of subsoil, with no need for a separation layer which had caused problems in the past. Enbridge also confirmed that soils assessments are conducted throughout the footprint of the project and that information is put on the environmental alignment sheets for construction. Soil is then put back to baseline conditions, unless otherwise requested by a landowner. In terms of work on wet soils, Enbridge confirmed that a shutdown decision would be made by the environmental inspector combined with the chief inspector and the

	construction manager. While Enbridge would receive input from the landowner, the company's expectation is that Enbridge would be shutting down the work long before the landowner felt they needed to say anything. With respect to soils management on the portion of the Project that would be parallel to the Line 2 Replacement project, Enbridge explained that the proposal to store topsoil for the year between construction of the two projects is one of the primary mitigative options for maintaining topsoil quality. Enbridge noted that similar topsoil storage methods were implemented during the construction of the Enbridge Alberta Clipper Project in Manitoba where topsoil remained windrowed up to 15 months, and the results of post-construction were favourable in showing a generally good establishment of vegetation along the RoW as an indicator of soil productivity.
Views of the Board	The Board is satisfied with Enbridge's proposed mitigation to maintain soil structure, quality and productivity, and is in agreement that leaving the topsoil windrowed between the construction of the Enbridge Line 2 Replacement project and completion of Project construction would conserve the quality of topsoil to a greater extent as compared to the multiple disturbances caused by topsoil stripping, replacement and subsequent re-stripping within a year. With respect to engaging the landowner in soils handling practices, the Board notes Enbridge's commitment to share results of environmental field studies as well as discuss the EPP and Environmental Guidelines for Construction with the landowner, upon request (subsection 5.1.1). Enbridge also indicated that, anytime during construction, if the landowner had an issue with any kind of construction practice, the landowner could bring it to Enbridge's attention. The Board is of the view that requiring engagement with all landowners on soils management by means of a condition is unduly broad, as landowners all have different levels of expertise and interest in the technical aspects of construction. The Board is satisfied with Enbridge's commitments to inform and engage with the landowner on soils management and other construction practices, if so requested. The Board notes that the complaint tracking system is well suited to monitor the soils management plan and landowner concerns (Certificate Condition 4, Appendix II). To confirm all mitigation measures related to soils handling and topsoil storage, the Board is requiring that Enbridge provide all detailed mitigation in its updated EPP to be submitted to the Board for approval. (Certificate Condition 7, Appendix II). The post-construction monitoring reports submitted as a requirement of Certificate Condition 14, Appendix II would provide transparency in determining the success of soil replacement and recovery, and a basis for any corrective actions.
Evaluation of Significance of Residual Effects	Frequency: Multiple Duration: Short-term to medium-term Reversibility: Possible Geographical Extent: Project Footprint Magnitude: Low Adverse Effect Not likely to be significant

8.5.4.2 Weed and Clubroot Management

Background/Issues and Views of Participants	Potential Adverse Environmental Effects: ▪ Weed introduction and spread ▪ Spread of clubroot disease between fields Enbridge indicated that clubroot is a soil-borne disease that affects canola, mustard and other crops in the cabbage family, and is considered a pest under the Alberta *Agricultural Pests Act*. Clubroot disease is spread through resting spores in the soil which can survive

	for up to 20 years. Enbridge submitted that, as of November 2011, clubroot disease was identified in 10 to 45 fields each in Strathcona County, the County of Camrose and Flagstaff County. More than 45 fields have been identified as being affected by clubroot disease in Leduc County. To date, clubroot disease has not yet been identified in Beaver County or the MD of Provost. Strathcona County, Leduc County, Flagstaff County and Beaver County have identified potential for clubroot disease to be encountered by the proposed pipeline route. During the hearing process, both the BTSRA and the Landowners Group expressed concerns to Enbridge regarding securing weed-free fill and access road construction material, controlling weed infestations on the RoW, controlling weeds on topsoil piles, and eliminating the spread of clubroot through transfer of soil between fields. The Landowners Group requested conditions on the Certificate to ensure that all imported sources of fill and gravel have been screened and analyzed by qualified third parties, that the landowner is engaged in the material selection, and documentation is provided to acknowledge such. The Landowners Group also requested a condition that topsoil piles be managed effectively to eliminate weeds and that Enbridge engage the landowner in weed control strategies. Further concerns were expressed at the hearing by both the BTSRA and the Landowners Group regarding cleaning and disinfection protocols to prevent the spread of clubroot. Concerns were extended to surveyors and foot traffic as well as wind management of soil particles. The BTSRA questioned Enbridge on potential use of a sign-off form for each vehicle cleaned at a clubroot cleaning station, which would include the vehicle information and sign-off for Enbridge personnel that would be working on a landowner's property that day, and be delivered to the applicable landowner each day prior to entering the property. The Landowners Group also had questions as to how Enbridge would ensure to the landowner that factory condition washings had been completed on all construction equipment and vehicles, with an emphasis on achieving the highest standard of cleaning. In particular, the Landowners Group cited the Canola Council of Canada as a well-known authority on the management of clubroot and protocols for clubroot mitigation. The Landowners Group raised additional concerns related to the proper removal and disposal of cleaning stations and cleaning station materials. The Landowners Group requested that Enbridge have soil sampling and laboratory tests conducted on cultivated properties along the proposed route both pre- and post-construction in order to identify any clubroot presence, and the information shared with the landowner.
Proposed Mitigation	Enbridge agreed that management of noxious and prohibited weed species is of paramount concern during pipeline construction, especially in agricultural areas. As part of its Application to the Board, Enbridge submitted a draft Weed and Clubroot Management Plan for the Project. It is Enbridge's position that its plan, as submitted and further developed through consultation with the counties and landowners, incorporates the highest standards of mitigation. Enbridge also indicated that it has several other company-wide policies and guides in place to manage weeds, including an internal Vegetation Management Guide (2010), Environmental Guidelines for Construction (2012), and Enbridge's Operating & Maintenance Procedures Book 8: Environment (2013). In response to questions on whether the landowner would be made aware of the source of fill material, Enbridge stated that this was not a common request, but that this information could be provided to the landowner upon request. Enbridge explained that if a landowner should specifically request Enbridge to do any analysis on a type of fill material that was brought in, Enbridge would be prepared to do that. The landowner would be given the final authority in rejecting or accepting that fill. Enbridge stated that the landowner would have a say in the weed control process on topsoil piles, and if a landowner had any concerns, questions or comments during the construction phase, Enbridge would be more than willing to discuss or take any concerns

	into consideration. Enbridge indicated that, prior to construction, further discussions regarding the mitigation and management of topsoil piles as described in Enbridge's documents and weed and clubroot management plan could also take place. If the weed control process involved any type of chemical control, the landowner would be notified. With respect to clubroot, Enbridge's draft Weed and Clubroot Management Plan for the Project details the proposed mitigation to reduce the possibility of introduction and spread of the soil-borne disease. Enbridge suggested twelve locations for clubroot cleaning stations, based on suggestions by the different counties crossed by the Project, boundaries between counties and between high and low risk areas or activities, and landowner requests, among other criteria. Enbridge also confirmed that the equipment and vehicle cleaning process is documented and audited in the field by their environmental inspectors, which would include one environmental inspection coordinator and a total of six inspectors (two for each of three planned construction spreads). In addition, Enbridge would consider using a landowner construction monitor to act as a liaison between landowners and Enbridge (Subsection 5.1.1). Enbridge indicated that it would be prepared to provide the documentation and field audits to the landowner on a daily basis. Enbridge confirmed that it would have no problem with a landowner viewing the mitigation protocols (such as cleaning stations). Enbridge submitted that it provides an environmental education and orientation program to all of its contractors prior to sending them out on the RoW, part of which includes a discussion on the importance of cleanliness and of keeping machines clean. Enbridge confirmed that cleaning protocols do include foot traffic as well as equipment traffic. Enbridge did not have specific details in its current clubroot protocol on how to clean footwear, but agreed that it could be added into the next iteration of the EPP. With respect to conducting soil sampling for clubroot along the proposed route ahead of construction, Enbridge submitted that the best value for its money was in the cleaning stations and cleaning protocols, and that the counties are already doing a lot of sampling on their own, in some cases, have been doing so for many years. Nonetheless, Enbridge stated that if there was a specific case where a landowner wanted to negotiate clubroot sampling, that would be a different situation. Enbridge submitted that its proposed mitigation is consistent with recommended industry standards to reduce the introduction and spread of clubroot, and consistent with the measures implemented during the Enbridge Line 4 Extension project (which the Project parallels for part of its distance). Enbridge reported that, to date, no concerns regarding clubroot or other crop diseases have been reported following the Enbridge Line 4 Extension project construction.
Views of the Board	In general, the Board finds Enbridge's proposed mitigation adequate, and in line with current industry best practices. However, the Board considers weed and clubroot management to be of paramount importance in this area. Clubroot is a potentially devastating disease for canola growers. As the Landowners Group stated, Canadian ranchers and farmers grow commodities for the rest of Canada and the world, and they are needed by society. Therefore, any impacts to farmers from the spread of clubroot have broad and lasting consequences both to individual farmers and to Canadians. The Board is of the view that the highest standard of clubroot mitigation should be applied on this Project. During the hearing, Enbridge provided explanations as to how its clubroot mitigation, including equipment and footwear cleaning practices, would be audited and enforced in the field. However, this element of field enforcement does not currently appear in Enbridge's draft Weed and Clubroot Management Plan. The Board recommends that a system of verification and enforcement for confirming that all mitigation measures are implemented consistently and appropriately in the field be clearly explained in Enbridge's final plans. To enable a comprehensive review of all weed and clubroot mitigation measures, implementation and enforcement plans, the Board has included a condition

requiring Enbridge to file an updated Weed and Clubroot Management Plan developed in consultation with appropriate municipal or provincial authorities and landowners. See Condition 8 of the Certificate in Appendix II for more detailed wording of this condition. This document would form a part of Enbridge's EPP for the Project.

The Board notes the Landowners Group's request for conditions regarding the acquisition of third-party certified weed-free fill and gravel. Enbridge stated that it has a procedure for obtaining fill and conducting a visual inspection; however, the Board acknowledges that Enbridge was not totally clear on what this procedure entailed, or where and by whom it would be certified as clear of weeds. While Enbridge made no comment to the conditions proposed by the Landowners Group, the Board notes Enbridge's statements that it would be prepared to provide information on material sourcing, to do any analysis upon request on a type of fill that was brought in, and that the landowner would have the authority to reject or accept the fill. For additional clarity and assurance, the Board has modified Condition 8 of the Certificate in Appendix II to include a description of Enbridge's procedures for screening for weeds, consultation, and documentation for any imported sources of fill and gravel.

With respect to the management of topsoil piles to eliminate weeds, the Board is of the view that this aspect of construction will be addressed thoroughly through the requirements of Certificate Conditions 7(a) and 8 in Appendix II. The Board notes Enbridge's commitment to discuss with the landowner, upon request, the EPP and Environmental Guidelines for Construction (subsection 5.1.1) as well as weed control processes. In addition, landowners will have a chance to provide input to the Weed and Clubroot Management Plan through the consultation required by Certificate Condition 8 in Appendix II.

The Landowners Group requested that Enbridge's clubroot mitigation strategies encompass several means by which clubroot is known to travel, including equipment, foot and wind transportation of soil particles. The Landowners Group also wished to see proper and effective dismantling, containment and disposal of wash stations and wash station materials. While the Board expects that a complete Weed and Clubroot Management Plan would include these elements, the Board has included them in Certificate Condition 8 in Appendix II for added clarity.

The Landowners Group also requested that a qualified third party conduct soil sampling and laboratory testing on all cultivated properties along the RoW prior to construction, so that all properties tested as clubroot-free receive all possible measures to remain so, while those properties found to contain clubroot spores receive the highest protocols to contain them. The Board notes Enbridge's statement that several counties conduct their own sampling programs, and that the best value for money is in the cleaning protocols rather than the sampling. However, the Board sees merit in conducting clubroot sampling and testing prior to construction, upon landowner request in order to refine Enbridge's clubroot mitigation strategy to provide the most effective mitigation in the most critical locations. Similarly, the Board also sees merit in conducting post-construction sampling and testing for clubroot spores, should it also be requested by the landowner.

The Board therefore requires Enbridge to offer pre-and post-construction laboratory testing for clubroot as an option to all landowners owning cultivated properties crossed by the Project RoW. The Board has added a requirement to this effect to Certificate Condition 8 in Appendix II. The Board also requires Enbridge, as part of Enbridge's tracking of landowner complaints under Condition 4 in Appendix II to track and report any complaints related to weed and clubroot management.

Evaluation of Significance of Residual Effects	Frequency	Duration	Reversibility	Geographical Extent	Magnitude
	Single to Multiple	Short-term to medium-term	Possible	Project Footprint to LSA	Moderate
	Adverse Effect				
	Not likely to be significant				

8.5.4.3 Wetlands

Background/Issues and Views of Participants	Potential Adverse Environmental Effects: ▪ Alteration of wetland habitat function ▪ Alteration of wetland hydrological function ▪ Loss or reduction of wetland water quality function ▪ Permanent loss of wetland habitat, hydrology and water quality functions at Edmonton Terminal Field surveys conducted by Enbridge in 2012 and 2013 identified 235 wetlands crossed by the Project route (approximately 9 per cent of the proposed route). EC noted that that wetlands often serve as habitat for many various species at risk and migratory birds, and that significant efforts should be made to protect wetlands from habitat destruction. EC recommended Enbridge maintain 100 m buffers, where feasible, from the wetland's historic high-water mark. Where it is not possible to avoid wetlands, EC recommended applying mitigation measures and monitoring annually during recovery to ensure no net loss of wetlands and their functions. At the Edmonton Terminal, permanent facilities will be installed within the terminal boundaries on cultivated land and a wetland complex. Wetland habitat and hydrological function will be lost. Because of the extensive historical losses of wetlands in the Canadian prairies, EC acknowledged and supported Enbridge's commitment to compensate any wetland losses with a minimum 3:1 ratio.
Proposed Mitigation	Enbridge listed a number of standard measures it would follow to mitigate the potential adverse environmental effects on wetland habitat, hydrology, and water quality functions over the Project route. These are included in its Application and draft EPP. Enbridge committed to the intent of the objective of the *Federal Policy on Wetland Conservation* (FPWC), which is to promote conservation of Canada's wetlands to sustain their ecological and socio-economic functions through the goals of: (a) 'no net loss' of wetland function on federal lands or projects, (b) enhancement and rehabilitation of wetlands in areas where the continuing loss or degradation of wetlands or their functions have reached critical level, and (c) recognition of wetland functions in resource planning, management and economic decision-making with regard to all federal programs, policies and activity. At the Edmonton Terminal, Enbridge committed to fulfill compensation requirements for wetland habitat loss through consultation with Alberta Environment and Sustainable Resource Development (AESRD) and EC. This took the form of an agreement with Ducks Unlimited Canada (DUC) to conduct wetland restoration to compensate for the permanent wetland loss at the Edmonton Terminal at a ratio of 3:1. Enbridge noted that the DUC wetland compensation agreement details the plan for restoration or replacement of similar wetland classes within the same major watershed basin. Enbridge will provide compensatory funds to fulfill their part of the agreement. Regarding wetlands crossed during Project construction, Enbridge indicated that it will

	have annual wetland function post-construction monitoring reports prepared that document the success of wetland mitigation and reclamation, wetland recovery and the return of functionality to these temporarily disturbed ecosystems. The content of the annual wetland function reports will be the foundation for future discussions with EC to determine if compensation is warranted at the end of five years of post-construction monitoring. Enbridge confirmed that it will commit to discussions with EC should post-construction monitoring show that at the end of five years temporarily disturbed wetlands have not been fully restored. At that point, the type of compensation would be negotiated with EC and DUC.
Views of the Board	The Board notes Enbridge's mitigation measures for those wetlands temporarily disturbed by Project construction, and expects to see all finalized measures reported clearly in the EPP to be submitted to the Board for approval. The Board also notes Enbridge's commitment to the objective of the FPWC. With respect to the permanent loss of the wetland that would occur with the construction of new facilities at the Edmonton Terminal, the Board considers Enbridge's compensation agreement with DUC adequate to offset the lost wetland functions. However, the Board is mindful of the importance of the remaining wetlands in this highly altered landscape, and recommends that any wetlands temporarily disturbed by the Project that are not successfully reclaimed within five years also have some form of compensation applied. To this end, the Board has included a condition requiring Enbridge to file, at the end of five years of post-construction monitoring, a report detailing the success of wetland reclamation for the Project and outlining any compensation plans for those wetlands not yet successfully reclaimed, in consultation with regulatory authorities such as EC (Certificate Condition 15, Appendix II).
Evaluation of Significance of Residual Effects	

Frequency	Duration	Reversibility	Geographical Extent	Magnitude
Multiple	Short-term to medium-term	Reversible to Possible	Project Footprint to RSA	Low to Moderate
Adverse Effect				
Not likely to be significant				

8.5.4.4 Wildlife Species at Risk

Background/Issues and Views of Participants	Potential Adverse Environmental Effect: ▪ Effects (as listed in Table 8-3 under "Wildlife and Wildlife Habitat") on Sprague's pipit, loggerhead shrike, ferruginous hawk, yellow rail and horned grebe, as indicator species, and their habitats EC advised Enbridge to use experienced personnel to undertake appropriately timed surveys using widely accepted protocols prior to commencing any construction, and to include those species listed by COSEWIC as well as those listed under the SARA. EC indicated that surveys should also include an assessment of wetlands impacted by the Project to determine if these wetlands provide breeding or overwintering habitat for species at risk. In addition, EC recommended the following for mitigating impacts to wildlife species of special conservation status: ▪ that Enbridge follow species-appropriate setbacks and timing restrictions as provided by EC; ▪ with respect to Sprague's pipit, because nests are difficult to find, that birds singing within or above territorial boundaries or behaviour indicative of nesting should be interpreted as evidence of nests; and

	▪ that an environmental monitor knowledgeable in the identification of all species at risk is present on-site during construction and reclamation.
Proposed Mitigation	Enbridge committed to several mitigation measures for wildlife and wildlife species at risk that are included in its Application and draft EPP. Enbridge committed to EC's recommendations with respect to Sprague's pipit; use of an on-site Environmental Inspector (with help from Wildlife Resource Specialists as needed); and surveys of migratory birds, species at risk and wetlands. Enbridge also committed to comply with EC's *Petroleum Industry Activity Guidelines for Wildlife and Species at Risk in the Prairie and Northern Region* as well as EC's minimum setback distances from nests for chestnut-collared longspur, common nighthawk, barn swallow, bobolink, Baird's sparrow and horned grebe.
Views of the Board	The Board is satisfied with Enbridge's proposed mitigation to minimize impacts to wildlife species at risk, and requires Enbridge to provide all detailed mitigation in its updated EPP to be submitted to the Board for approval as part of Certificate Condition 7 in Appendix II and Order Condition 6 in Appendix III. The detailed mitigation should include each species-specific setback distance and how these setbacks and timing restrictions will be enforced. The Board also notes that there are several provincially-listed species in the Project study area, and any provincial setback distances and timing restrictions for these species should be equally observed.
Evaluation of Significance of Residual Effects	Frequency: Accidental Duration: Short-term to medium-term Reversibility: Possible Geographical Extent: Project Footprint to RSA Magnitude: Low to Moderate Adverse Effect Not likely to be significant

8.5.4.5 Disruption of Site-Specific TLU Identified During Ongoing Engagement

Background/Issues and Views of Participants	Potential Adverse Environmental Effects: ▪ Disruption of site-specific TLU identified during ongoing engagement ▪ Disruption of traditional activities during construction Enbridge submitted that it has received a number of proposals from Aboriginal communities interested in undertaking an assessment or review of TLU of the Project area. These groups included: Alexander First Nation, Enoch Cree Nation, Ermineskin Tribe, Louis Bull Tribe, Montana First Nation and Samson Cree Nation. Of those proposals, Ermineskin Tribe has completed a review of traditional uses within the Project area which identified traditional plants and animal habitat within 500 m of the proposed RoW and has no outstanding concerns pertaining to the Project. In regard to the other proposals, Enbridge has agreed to an initial scope of work with Enoch Cree Nation that includes a meeting and mapping session to identify any potential specific impacts or concerns related to the Project is waiting to receive a revised proposal from the other groups. Enbridge also noted that it received a report from TTN on traditional uses which indicated that wildlife, vegetation and spiritual/historical sites are in proximity to the proposed RoW. TTN subsequently filed a letter of support for the Project and indicated that all issues of concern in the Project area had been resolved. Enbridge committed that it will continue to work with engaged Aboriginal communities on the Project and will notify the Board of any Project specific concerns and any resulting mitigation that arise from further Aboriginal consultation that is not otherwise included in

<table>
<tr><td></td><td>material already filed with the Board.</td></tr>
<tr><td>Proposed Mitigation</td><td>Enbridge indicated that, if any additional sites requiring mitigation are identified during further consultation and TLU investigations, it would develop and implement mitigation measures in consultation with the affected Aboriginal groups. Enbridge has developed standard mitigation measures for potential undiscovered historical/heritage resource sites that may be encountered during construction. In the event previously unidentified sites are encountered during construction, Enbridge will implement its Traditional Land and Resource Use Discovery Contingency Plan.

In response to specific concerns raised by Ermineskin Tribe, Enbridge indicated willingness to consider transplantation of certain plant species according to the First Nation's directions and instructions.</td></tr>
<tr><td>Views of the Board</td><td>The Board notes that Enbridge continues to work with the Aboriginal communities listed above in respect of obtaining site-specific TLU information for the Project area.

The Board has decided to include a condition requiring Enbridge to file for approval, in advance of commencing construction, a report on TLU investigations for the Project (Certificate Condition 11 in Appendix II). The Board is of the view that any potential impacts on TLU can be resolved through the use of the mitigation measures developed and implemented in consultation with affected Aboriginal groups along with measures to address potential effects to resources used for traditional purposes. In the Board's view, the potential adverse effects on the current use of lands and resources for traditional purposes by Aboriginal persons are not likely to be significant.</td></tr>
<tr><td>Evaluation of Significance of Residual Effects</td><td>
<table>
<tr><th>Frequency</th><th>Duration</th><th>Reversibility</th><th>Geographical Extent</th><th>Magnitude</th></tr>
<tr><td>Single to Multiple</td><td>Short-term to medium-term</td><td>Possible</td><td>Project Footprint to LSA</td><td>Low to Moderate</td></tr>
<tr><td colspan="5">Adverse Effect</td></tr>
<tr><td colspan="5">Not likely to be significant</td></tr>
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8.6 Cumulative Effects Assessment

The assessment of cumulative effects considers the impact of the residual effects associated with the Project in combination with the residual effects from other projects and activities that have been or will be carried out, within the appropriate temporal and spatial boundaries and ecological context.

Enbridge developed lists of current and ongoing development activities and known proposed development activities to develop an assessment of cumulative effects of the Project in combination with other projects or activities that are reasonably foreseeable.

Current activities contributing to environmental effects include agriculture (crop and forage production, livestock grazing), utilities (transmission and gas distribution lines), urban and rural residential development, transportation (roads and railways), oil and gas exploration and development activities, in addition to limited development of industry and mines, cutlines and airports.

Other existing projects and facilities, including approved but not yet built projects and facilities in proximity to the Project, with potential to result in cumulative effects include:

- Cargill Limited canola crush plant near Camrose, AB;
- ATCO Electric Eastern Alberta Transmission Line Project between Bruderheim and Brooks, AB;
- Various oil and gas developments by TransCanada Pipelines Limited, TransMountain Pipeline ULC, Plains Midstream Canada ULC, Kinder Morgan Canada, Penn West Petroleum Ltd., Enerplus Corporation, Barrick Energy Inc. and ATCO Electric, Forge Petroleum Corporation, Enhance Energy and NovaGreen Inc.;
- Various Enbridge projects including Enbridge Line 2 Replacement project, Edmonton Terminal (South) Expansion project, Enbridge Athabasca Pipeline Twinning project, AB Clipper Capacity Expansion project, and ongoing integrity testing;
- Altalink L.P. and EPCOR Distribution & Transmission Inc. Heartland Transmission project, an overhead transmission line between Fort Saskatchewan and Edmonton; and
- Continuance of agriculture, transportation development including highway projects, ongoing powerline maintenance, and rural and urban residential development.

The Project's location adjacent to a number of existing pipelines in the Enbridge mainline corridor caused some concern with respect to the increasingly wide footprint of the corridor on soils, vegetation, wildlife, and agriculture. Enbridge's submissions indicated a total corridor width of approximately 10 m (where the Project is not adjacent to any existing lines) up to 85 m (from KP HB0 to HB0.8; adjacent to the Enbridge Line 2 Replacement project and an Altalink RoW) along the Project route. Enbridge explained that the spacing between the Project and the closest parallel line was based on a minimum 12 m spacing to allow for safe positioning of the spoil pile from a ditch for a Nominal Pipe Size 36 line for the Project on the adjacent easement without placing any spoil on top of the adjacent operating pipeline and maintaining a three metre buffer between the existing Enbridge pipeline and the edge of the spoil pile during construction of the Project. In Enbridge's opinion, this distance represents the right balance between safety and environmental disturbance. Enbridge committed to narrow its footprint, where possible, up to this safe distance. Where feasible, the TWS would be shared with the existing adjacent RoW (up to 8 m).

Potential cumulative effects of the Project include:

- Incremental changes in soil productivity;
- Alteration of natural surface water flow patterns and reduction in surface water quality;
- Increase in air emissions, including fugitive dust and smoke, during construction and site-specific maintenance activities;
- Increase in noise during construction;
- Increase in noise levels during operation of the proposed Kingman and Strome pump stations;
- Increased riparian habitat disturbance and incremental change in fish and fish habitat;

- Increase in wetland disturbance (including alteration or loss of wetland habitat function, hydrological function, and water quality function);
- Incremental change to native community composition, alteration of rare plant populations or communities, weed introduction and spread, and alteration of ornamental trees, windbreaks and shelterbelts;
- Incremental alteration of wildlife habitat availability and effectiveness, movement patterns, and mortality risk; and
- Incremental effects on wildlife species at risk.

Enbridge submitted that the cumulative environmental and socio-economic effects associated with the construction and operation of the Project are not unlike those routinely encountered during pipeline construction in an agricultural setting. All potential effects where there was a high probability of occurrence of a permanent or long-term cumulative effect of high magnitude were considered to be able to be technically or economically mitigated.

Wetlands

Wetlands have suffered extensive losses in the Canadian prairies. Cumulative effects on wetlands from the Project would be both permanent (at the Edmonton Terminal) and temporary (along the Project RoW).

Enbridge's cumulative effects assessment states that approximately 94.41 per cent of the wetlands in the LSA and 88.64 per cent of the wetlands in the RSA have been affected through surface disturbance associated with existing activities. With the Project and other planned development, the percentage of disturbed wetlands in the LSA and RSA would increase to over 96 per cent and 88 per cent, respectively.

Several of the projects included in Enbridge's cumulative effects assessment belong to Enbridge, including the Line 2 Replacement project, the Edmonton Terminal (South) Expansion project, the Athabasca Pipeline Twinning project, the Alberta Clipper Capacity Expansion project, and ongoing integrity digs along its existing system.

Views of Enbridge

In response to questioning, Enbridge expanded on how it measures and mitigates cumulative effects as a whole from its various projects within the region, and explained some of its corporate policies.

Specifically, Enbridge indicated that it collects information from its post-construction wetland monitoring in the form of annual environmental monitoring reports that are submitted to the Board for review. Cumulative effects on wetlands are mitigated by using appropriate techniques at the time of construction and reclamation. Enbridge submitted that, to date, all temporary disturbances to wetlands from previous pipeline projects have been of short duration and the wetlands recovered quickly and were fully reclaimed after five years time; most wetlands came back after one to three years.

Enbridge submitted that it does not have a specific policy on conducting cumulative effects assessments, but it does have a neutral footprint initiative which is intended to address cumulative impacts on a corporate scale. Through its neutral footprint commitments, Enbridge will plant a seedling for every merchantable tree it removes, conserve an acre of natural habitat for every acre it permanently impacts, and generate a kilowatt of renewable energy for every kilowatt of power that its newly constructed operation consumes. Enbridge further submitted that its Neutral Footprint Plan is designed to reduce Enbridge's environmental impact on trees removed, on natural habitat permanently altered, and on energy used to power operations by compensating for these resources within a five-year time frame.

Views of the Board

In this region, wetlands are an environmental element already historically impacted by cumulative effects. The Board notes Enbridge's agreement with DUC to compensate for the permanent wetland loss at the Edmonton Terminal at a ratio of 3:1 (subsection 8.5.4.3). The Board also recognizes Enbridge's submission that all wetlands temporarily disturbed on its projects to date have recovered within a five-year time frame.

When several projects are initiated by the same company in the same region, the Board notes that there are opportunities to manage cumulative effects on various environmental elements. For instance, the Board acknowledges that Enbridge has used Project routing adjacent to its existing pipelines as a means of mitigating direct and cumulative Project effects by limiting the footprints of multiple projects. However, the Board also notes that, while Enbridge explained that it conducts post-construction wetland monitoring for its projects, it did not indicate a means of tracking and evaluating post-construction monitoring results across projects in a geographic region. Such information would aid in understanding the overall cumulative impact in a region in terms of incremental alterations to wetland health and function over time. It is the Board's view that a robust environmental protection program, as required under section 48 of the OPR, should include management of cumulative effects of a company's projects on the environment, and that effective management and mitigation of cumulative effects on environmental elements (such as wetlands) in a region is limited without first tracking and measuring these effects at a broader scale.

For this Project, the Board is satisfied with Enbridge's proposed wetland mitigation and compensation plans as discussed in subsection 8.5.4.3, when combined with the Board's conditions and compliance with the OPR.

Overall, the Board is of the view that, with successful implementation of Enbridge's proposed mitigation measures, Enbridge's commitment to narrow its Project Footprint where it is safe to do so, Enbridge's Neutral Footprint Plan, and the fulfillment of the Board's conditions, the cumulative effects of the Project would not be significant.

8.7 EA Conclusion

The Board is of the view that, with the implementation of Enbridge's environmental protection procedures and mitigation and the Board's recommended conditions, the Project is not likely to cause significant adverse environmental effects.

Chapter 9

Infrastructure, Employment and Economy

The Board's expectations for an applicant regarding direct socio-economic impacts caused by the existence of the project are set out in the Board's Filing Manual. Applicants are expected to identify and consider the impacts a project may have on infrastructure, services, employment and economy. Applicants are also expected to provide mitigation of negative impacts and the consideration of positive benefits of the project.

Potential socio-economic effects that are caused by changes to the environment are included in Chapter 8, Environment and Socio-Economic Matters. Direct socio-economic effects caused by the existence of the Project itself are discussed below. Other economic effects are addressed in Chapter 3, Economic Feasibility.

9.1 Infrastructure and Services

9.1.1 Infrastructure

Views of Enbridge

Enbridge submitted that traffic along highways and local roads used to access the proposed RoW is likely to increase during construction. To minimize the potential effects of the Project on local transportation infrastructure, Enbridge committed to develop a Traffic Management Strategy prior to construction, which would provide guidelines for traffic management and safety for the construction phase of the Project. Enbridge committed to consult with affected municipalities in the Project area to discuss the Traffic Management Strategy prior to construction.

Enbridge indicated there will be potential for a temporary increase in waste flow to regional landfill sites during construction. To manage the waste on its work sites to the highest standards possible, Enbridge committed to following measures identified in its Waste Management Plan. Enbridge also committed to consult with affected municipalities in the Project area to discuss the Waste Management Plan prior to construction.

9.1.2 Services

Views of Enbridge

Enbridge submitted that construction of the Project is expected to be conducted in three spreads, each requiring approximately 500 persons per spread. The peak requirements for personnel and services will occur in the fall of 2014 and reach approximately 1,500 persons. Enbridge noted that there will be sufficient accommodation in the Project area. Local commercial accommodations, including existing hotels, motels, and recreation vehicle parks will be utilized in Edmonton, Camrose and Hardisty.

9.1.3 Disruption to Agricultural Activities

Views of Enbridge

Enbridge noted that ranchers and farmers along the proposed route may experience disruption to their activities during the short-term duration of construction. However, in Enbridge's view, the Project will not affect the sustainability of farming and ranching activities in the vicinity of the Project route, or the livelihood of local farmers and ranchers.

Enbridge stated the Pipeline will be buried with an adequate depth of cover to allow traffic associated with current land use to cross the RoW during normal conditions and, consequently, will not hinder the ability of the landowners to maintain their current agricultural operation. In addition, Enbridge noted that its standard depth of cover of 0.9 m measures to the base of the topsoil. Therefore, the depth of cover will exceed 0.9 m as a result of the additional depth provided by the top soil. In response to the BTSRA's argument that Enbridge should consider altering the minimum depth of cover to at least 2.1 m, Enbridge noted that such an alternative would have further impacts to the Project Footprint such as requiring a wider trench and additional top soil stripping.

Enbridge indicated that it provides blanket approval to landowners for crossing the RoW with agricultural equipment that does not exceed maximum allowable axle loading or basic operating weight. It also further indicated that the existence of the NEB-designated safety zone does not preclude the development of land to occur and that Enbridge will work with landowners to accommodate their needs. In its Application, Enbridge also stated that scheduling pipeline construction outside of the peak agricultural activity period, providing advanced notification of the pipeline activity schedule to all affected landowners, and providing compensation for disrupted activities and crop loss would lessen potential impacts on agricultural activities.

With regard to the Landowners Group's Pipeline abandonment concerns, Enbridge acknowledged that it would comply with all applicable regulatory requirements in force at the time of decommissioning or abandonment. Specifically, with respect to the financial matters related to pipeline abandonment, Enbridge confirmed that landowners would not be liable for the costs associated with an abandoned pipeline.

Views of Participants

The BTSRA and the Landowners Group raised concerns with respect to soil management and reclamation, and weed control and management. For the Project, these issues are addressed in greater depth in Chapter 8 of this Report.

BTSRA

The BTSRA indicated that Enbridge should consider altering the minimum depth of cover from 0.9 m, stated in the company's Application, to at least seven feet (2.1 m). The BTSRA suggested that such a change would allow landowners to maintain the use of their land without the potential disruption to agricultural activities that could result from the typical use of heavy equipment.

The BTSRA argued that the Pipeline should be removed from the ground at the end of its life so landowners have no liability with respect to the Pipeline.

Landowners Group

The Landowners Group expressed concerns that the Project would have an adverse economic and commercial impact on both ranching and agricultural operations carried out during construction, operations and future abandonment of the Project. It submitted that any negative impacts on ranching and agricultural operations would be increased by the restrictive nature of the safety zone and if the Pipeline is not buried to a sufficient depth. In addition, the Landowners Group sought further information from Enbridge about the design and construction of the pipeline, and how their ranching and agricultural operations may be impacted by the Project.

The Landowners Group also sought assurances that Enbridge would assume liability for all environmental contingencies, including liability for any major spills or breaks, and the future abandonment of the Pipeline. It requested that the Board include a condition on any Certificate issued for the Project requiring Enbridge to provide evidence that it has enough insurance to cover any liability of spills.

9.2 Employment and Economy

Views of Enbridge

Enbridge stated that the Project would result in positive impacts on employment and economy through construction and operation contracting opportunities to qualified local businesses and the employment of local workers whenever possible. Enbridge also expects the Project to have positive indirect business effects and provide employment opportunities for nearby accommodations, stores and restaurants, and may generate increased tax revenue for all levels of government.

Enbridge noted that some Aboriginal groups had expressed a desire to benefit from the Project through business contracts and job opportunities. Enbridge committed to make construction contracting opportunities available to qualified competitive local and Aboriginal businesses wherever possible and track and report the amount of local personnel hired.

Enbridge submitted that it would identify and prepare a database of Aboriginal contractors and businesses that may provide services for construction, and provide these contacts to the prime contractors to use during the tendering process. Further, Enbridge indicated that it will offer contracting opportunities to qualified Aboriginal suppliers and contractors where appropriate, and will encourage joint venture opportunities between Aboriginal businesses and non-Aboriginal businesses when it builds capacity and supports mutual business interests.

Views of Participants

Landowners Group

Landowners Group indicated concerns regarding the hiring of local workers on the Project. It requested that Enbridge be required to employ a defined number of local people or a percentage

of personnel from local communities. The Landowners Group also submitted that Enbridge should be required to report the percentage of local employment and local businesses participating in contracting opportunities.

Views of the Board

The Board requires NEB-regulated companies to identify and consider the socio-economic effects of projects on individuals, groups, communities and societies. This includes consideration of a project's positive and negative socio-economic impacts, as well as any proposed enhancement and mitigation measures.

The Board acknowledges Enbridge's commitment to consult with affected municipalities in the Project area in developing a Traffic Management Strategy and Waste Management Plan in its EPP, which would be submitted to the Board for approval prior to the start of construction (Certificate Condition 7, Appendix II). In light of Enbridge's commitment to provide the above-noted strategy and plan for approval, the Board is of the view that the Project's impacts on infrastructure and services will be adequately addressed.

With respect to issues associated with pipeline abandonment, the Board recognizes that abandonment is a valid concern of landowners. Under the NEB Act, a company is required to file an application with the Board for approval of any abandonment project, which must include a detailed abandonment plan prepared in consultation with all landowners and other groups directly affected by the retirement of facilities, showing evidence that they have been sufficiently notified and their rights are protected. Abandonment plans must also demonstrate that money is set aside for abandonment work and for dealing with any unforeseen events. Further, should the Board issue an Abandonment Order, it may impose conditions that the Board would monitor for compliance and that must be met before abandonment is complete.

In light of Enbridge's strong financial position and assurances of insurance coverage, as set out in Chapter 3 on Economic Feasibility, the Board is satisfied at this time that Enbridge has the ability to cover any costs should any spill situation occur.

With respect to restrictions on the further development of the land near the pipeline, the regulatory requirements for work conducted near an NEB-regulated pipeline are contained in the *National Energy Board Pipeline Crossing Regulations, Parts 1 and 2* (Crossing Regulations). The Crossing Regulations and the NEB Act delineate a "safety zone," extending 30 m to either side of the RoW. Development of the land within the safety zone is permitted and the land legally remains the property of the landowner. However, to reduce the possibility of unintentionally striking a pipeline, any excavation using powered equipment within the safety zone requires prior approval from the pipeline company. The pipeline company may come to an agreement with landowners which outlines the conditions under which it is safe for landowners to carry out work or undertake certain activities within the safety zone.

As set out in Chapter 4 on Engineering and Emergency Response Matters where depth of cover was discussed, the Board is of the view that the CSA Z662 standards are sufficient

to accommodate ordinary agricultural practices. Further, the Board's *Guidance for Safe Crossings of NEB Regulated Pipelines Using Agricultural Vehicles and Mobile Equipment*, dated December 2010 and related *Exemption Order Respecting Crossings by Agricultural Vehicles or Mobile Equipment*[9] identifies situations where farming vehicles and mobile equipment can cross NEB-regulated pipelines without the need for further permission from the pipeline company. The Board notes that Enbridge committed to scheduling, where feasible, Project construction outside of peak times for agricultural activities as well as to providing advanced notification of its pipeline activity schedule to all affected landowners. Therefore, the Board is of the view that Enbridge has considered the impacts of the Project on agricultural activities and is satisfied that the potential effects will be adequately addressed.

The Board is also satisfied that the Project would provide positive employment and economic benefits through construction contracting opportunities to qualified local businesses and the employment of local workers whenever possible. The Project is also expected to have positive indirect business effects and provide employment opportunities for nearby accommodations, stores and restaurants. The Board notes Enbridge's intention and commitment to provide, wherever possible, opportunities for local and Aboriginal employment and economic participation in the Project. Therefore, the Board is of the view that requiring from Enbridge a minimum amount or percentage of local employees or contractors is not necessary.

9 The "Guidance for Safe Crossings of NEB Regulated Pipelines Using Agricultural Vehicles and Mobile Equipment" and related "Exemption Order Respecting Crossings by Agricultural Vehicles or Mobile Equipment" can be obtained online at https://www.neb-one.gc.ca/ll-eng/livelink.exe?func=ll&objId=659454&objAction=browse or from the NEB Library (ask for it by title or ISBN 978-1-100-17643-7).

Chapter 10

Toll Principles and Methodology

In its Application, Enbridge requested approval under Part IV of the NEB Act of its proposed tolling methodology for the Project. In assessing a proposed methodology, the Board considers whether the resulting tolls would be just and reasonable, and whether, under substantially similar circumstances and conditions with respect to all traffic of the same description carried over the same route, the tolls would be charged equally to all persons at the same rate. The Board must also be satisfied that the tolling methodology would not result in any unjust discrimination in tolls, service or facilities. In order to make these determinations, the Board considers all relevant factors specific to each application.

10.1 The Competitive Toll Settlement

Views of Enbridge

Enbridge indicated in its Application that the Competitive Toll Settlement (CTS)[10] is a 10-year negotiated settlement designed to provide shippers with a stable and competitive long-term toll agreement on the Enbridge Mainline. The CTS established the Canadian Local Tolls (CLT) for transportation of hydrocarbons solely on the Canadian Mainline and the International Joint Tolls (IJT) for all hydrocarbons shipped from Western Canadian receipt points on the Canadian Mainline to delivery points on the Lakehead System and in Eastern Canada. Both the CLT and IJT are inclusive of receipt and delivery terminalling services and are adjusted annually at a rate equal to 75 per cent of the Canada Gross Domestic Product at Market Prices Index (GDPP Index)[11].

Under the CTS, the Representative Shipper Group (RSG) was formed and includes representation from CAPP, CAPP members, and other shippers and interested parties. The RSG is intended as a counter party to negotiate any required changes to the CTS. The CTS sets out the principles for determining the tolls on the Enbridge Mainline, including the recovery of capital expenditures related to new projects. Enbridge stated that it is responsible for all capital expenditures during the term of the CTS unless otherwise agreed upon by Enbridge and the RSG. Enbridge further stated that any adjustments made to the CLT or IJT related to capital expenditures must be agreed to by Enbridge and the RSG.

10.2 Toll Methodology

Enbridge had initial discussions with industry regarding the Project beginning in the fourth quarter of 2011. Enbridge stated that there appeared to be broad industry support for the additional Mainline capacity from Edmonton to Hardisty at the outset. There was also a

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10 Competitive Toll Settlement was approved by the Board 23 June 2011, Order TO-03-2011: (A1Z9W5)

11 The GDPP Index in any given year is calculated as a ratio of the annual change in GDPP over the GDPP for the prior year and is expressed as a percentage. The GDPP Index is published by Statistics Canada Catalogue No. 13-019-X "Implicit price indexes, gross domestic product".

preference for a rolled-in tolling approach whereby the new pipeline would be integrated into the existing Enbridge Mainline system.

The Project was presented by Enbridge to the RSG for a two-fold approval process. First, the preferred scope of the Project was given. Second, Enbridge negotiated the scope and resulting toll increase with the RSG. Negotiations on the scope and commercial aspects of the Project, including the toll methodology, began in July 2012. The RSG approved the Project as set out in Issue Resolution Sheet (IRS) 2012-05 in November 2012. IRS 2012-05 set forth the tolling methodology and the impact on the CLT and IJT.

Enbridge stated that the negotiated amounts related to the cost of the Project are to be recovered through a surcharge applied to the CLT and IJT. This includes:

a) an initial increase on the CLT transmission charge by US $0.14 per barrel[12] surcharge for all barrels shipped ex-Edmonton;

b) an increase to the CLT terminalling charge of US $0.11 per barrel surcharge[13] for all barrels that incur a receipt terminalling charge at Edmonton Terminal; and

c) a surcharge of US $0.25 per barrel[14] on the IJT to be applied to all barrels transported ex-Edmonton.

Enbridge also stated that the surcharges will be adjusted annually by 75 per cent of the GDPP Index and will be in effect until the end of the CTS term (in 2021). Enbridge noted that the recovery of the Project's capital expenditures at the end of the CTS term will be made in a manner consistent with the Board regulations in effect at the time, likely through a further negotiated settlement.

Views of Participants

No concerns were expressed by Participants regarding the proposed tolling methodology.

Views of the Board

The Board notes that the Project has the support of the RSG, including the impact on tolls resulting from the Project. The Board also notes that no Participant expressed any concerns regarding Enbridge's proposed toll methodology. The CTS was approved by the Board on 23 June 2011 in Order TO-03-2011.Therefore, the Board has no concerns and approves the proposed toll methodology which is based on the principles contained within the CTS, under Part IV of the NEB Act.

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12 Surcharge to be converted to Canadian dollars per cubic metre.

13 Surcharge to be converted to Canadian dollars per cubic metre.

14 The IJT bundles transmission and terminalling in its surcharge that is equal to the sum of the CLT transmission and terminalling surcharge.

Chapter 11

Section 58 Facilities

11.1 Application for the Section 58 Facilities

In its Application for the Project, Enbridge requested an exemption Order from the Board, pursuant to section 58 of the NEB Act, authorizing the construction and operation of a new initiating pump at its existing Edmonton Terminal, a new pump station at each of its existing Kingman and Strome stations, and associated facilities and infrastructure at its Edmonton and Hardisty Terminals (Section 58 Facilities). Specifically, Enbridge sought exemption for these facilities from the provisions of paragraphs 30(1)(b), 31(c) and 31(d), and sections 33 and 47 of the NEB Act.

Views of Enbridge

Enbridge submitted that the sites for the new Edmonton, Strome and Kingman pump stations were selected primarily due to their proximity to existing facilities. Enbridge noted that this design will allow it to take advantage of existing infrastructure and reduce the Project Footprint, which will, in turn, minimize associated environmental and stakeholder impacts, and facilitate efficient operation and maintenance. Enbridge further submitted that it will not require new land for the new pump stations at the Edmonton Terminal and its existing Kingman station as the facilities would be constructed on lands owned by Enbridge. At the existing Strome station, Enbridge would require approximately 1.21 ha of additional land as it will expand the site to the north. The proposed facilities at Hardisty Terminal will be located within the existing boundaries of the terminal.

Views of Participants

No Participants expressed any concerns with respect to the Section 58 Facilities.

View of the Board

The Board conducted an environmental assessment of the Project in Chapter 8 of this Report, including the Section 58 Facilities, and concluded that, with the implementation of Enbridge's proposed environmental protection procedures and mitigation measures, and the Board's conditions, the construction and operation of the Section 58 Facilities are not likely to cause significant adverse environmental effects. The Board notes Enbridge's submission that the location of the Section 58 Facilities was selected in proximity to existing facilities in order to minimize environmental and stakeholder impacts. The Board further acknowledges that the new pump stations at the Edmonton Terminal and existing Kingman station would be located entirely on lands privately-owned by Enbridge. The Board also notes there are no outstanding concerns from anyone whose lands may be adversely affected by the location of the Section 58 Facilities.

The Board has decided that it is in the public interest to approve the Section 58 Facilities. The Board grants Enbridge an exemption from paragraphs 31(c) and 31(d), and section 33 of the NEB Act, subject to the conditions contained in the Order, which are outlined in Appendix III. The Order would exempt Enbridge from the requirement to file a plan, profile and book of reference for the Section 58 Facilities.

The Board has decided not to grant Enbridge exemption from the provisions of paragraph 30(1)(b) and section 47 of the NEB Act. Enbridge would have to apply for leave to open the Section 58 Facilities.

The Board is of the view that the Order is necessary only if the Governor in Council directs the Board to issue a Certificate in respect of the Section 52 Facility. Consequently, pursuant to subsection 19(1) of the NEB Act, the Board has decided that the Order takes effect only upon the issuance of a Certificate in respect of the Section 52 Facility.

Appendix I

List of Issues

The Board considered the following issues in this hearing:

1. The need for the Project.
2. The economic feasibility of the Project.
3. The potential commercial impacts of the Project.
4. The appropriateness of the tolling methodology.
5. The potential environmental and socio-economic effects of the Project, including any cumulative effects that are likely to result from the Project, as required by the NEB's Filing Manual.
6. The appropriateness of the general route and land requirements for the Project.
7. The engineering design and integrity of the Project.
8. Potential impacts of the Project on Aboriginal interests.
9. Potential impacts of the Project on landowners and land use.
10. Safety, security, contingency planning associated with the construction and operation of the Project, including emergency response planning and third-party damage prevention.

The Board did not consider, in this hearing, matters related to upstream activities, including the development of oil sands, or the downstream use of the oil transported by the Project.

Appendix II

Section 52 Certificate Conditions

In these conditions, the expression "commencing construction" means the clearing of vegetation, ground-breaking and other forms of right-of-way (RoW) preparation that may have an impact on the environment, but does not include activities associated with normal surveying.

In these conditions, where any condition requires a filing with the National Energy Board (Board)"for approval" prior to taking an action, Enbridge must not commence that action until the approval is issued.

In this document, the terms below (in bold) have the following meanings:

Project:

- Construction and operation of a new 914.4 mm (Nominal Pipe Size 36) outside diameter crude oil pipeline, approximately 182 kilometres (km) in length, from Enbridge's existing Edmonton Terminal, near Edmonton, Alberta (AB) to its existing Hardisty Terminal, near Hardisty, AB; and

- Construction and operation of a new initiating pump station at its existing Edmonton Terminal, a new pump station at each of its existing Kingman and Strome stations, and associated facilities and infrastructure at its existing Edmonton and Hardisty Terminals.

Section 52 Facility: Enbridge's proposed construction and operation of a new 914.4 mm (Nominal Pipe Size 36) outside diameter crude oil pipeline, approximately 182 km in length, from its existing Edmonton Terminal, near Edmonton, AB to its existing Hardisty Terminal, near Hardisty, AB.

Certificate: The Certificate of Public Convenience and Necessity, applied-for pursuant to section 52 of the *National Energy Board Act* (NEB Act), authorizing the construction and operation of the Section 52 Facility.

Certificate Conditions

General

1. Condition Compliance

Enbridge shall comply with all of the conditions contained in this Certificate, unless the Board otherwise directs.

2. Project Design, Location, Construction, and Operation

Enbridge shall cause the approved Section 52 Facility to be designed, located, constructed and operated in accordance with the specifications, standards and other information referred to in its Application, and as otherwise agreed to during questioning or in its related submissions.

3. Implementation of Environmental Protection

Enbridge shall implement or cause to be implemented all of the policies, practices, programs, mitigation measures, recommendations and procedures for the protection of the environment included in or referred to in its Application, and as otherwise agreed to during questioning or in its related submissions.

4. Landowner Complaint Tracking

From commencement of construction through to abandonment, Enbridge shall, for audit purposes, create and maintain records that chronologically track landowner complaints related to the Section 52 Facility, including complaints related to weed and clubroot management.

The landowner complaint records shall include:

a) the date the complaint was received;

b) how the complaint was received (e.g. telephone, mail, email, etc.);

c) subsequent date and summary of all telephone calls, visits, correspondence, site monitoring/inspections, follow up reports and other related documentation;

d) updated contact information for all persons involved in the complaint;

e) a detailed description of the complaint;

f) the date and a description of resolution of the complaint; and

g) if no resolution, further action to be taken or an explanation why no further action is required.

Prior to Construction (Including Clearing or Ground-Breaking Activities)

5. Construction Schedule

Enbridge shall file with the Board, at least 14 days prior to commencing construction, a detailed construction schedule(s) identifying major construction activities, and shall notify the Board of any modifications to the schedule(s) as modifications occur.

6. Manuals and Programs

Enbridge shall file with the Board within the time specified or as otherwise directed by the Board, the following:

a) Construction Safety Manual – 14 days prior to commencing construction;
b) Field Emergency Preparedness and Response Plan – 14 days prior to commencing construction;
c) Confirmation that a Security Management Plan for the Section 52 Facility, pursuant to *National Energy Board Onshore Pipeline Regulations* and CSA Z246.1, has been developed – 14 days prior to commencing construction; and
d) Field Pressure Testing Program – 14 days prior to pressure test.

7. Environmental Protection Plan

Enbridge shall file with the Board for approval, at least 60 days prior to commencing construction, an updated project-specific Environmental Protection Plan (EPP) for the Section 52 Facility, including Environmental Alignment Sheets. The EPP shall be a comprehensive compilation of all environmental and socio-economic protection procedures, mitigation measures and monitoring commitments, as set out in Enbridge's Application and as otherwise agreed to during questioning or in its related submissions.

The EPP shall describe the criteria for implementing all procedures and measures, and shall use clear and unambiguous language that confirms Enbridge's intention to implement all of its commitments.

The updated EPP shall include, but not be limited to, the following elements:

a) topsoil handling procedures and criteria for when special management (e.g., weed management, erosion control measures) would be required;
b) pre-construction survey procedures for species at risk;
c) contingency plans and mitigation should species at risk be found;
d) details of wetland crossing methods, mitigation and monitoring protocols;
e) site-specific watercourse crossing plans for all fish-bearing watercourses and wetlands, and contingency plans including the criteria that would be applied to determine when the contingency crossing method would be used on a case by case basis;
f) a detailed plan to make sure any effects to navigation and navigation safety on the Battle River during construction are mitigated;
g) a Traffic Management Strategy and Waste Management Plan, including a description of how the strategy and plan address any concerns or requests raised in consultations with municipal and/or provincial authorities; and
h) a reclamation plan for each of the different land use types traversed (for example, forest, wetland, hayland, native prairie, cultivated, riparian), including a description of the condition to which Enbridge intends to reclaim and maintain the RoW once the construction has been completed, and a description of measurable goals for reclamation.

8. Weed and Clubroot Management Plan

Enbridge shall file with the Board for approval, at least 60 days prior to commencing construction for the Section 52 Facility, an updated Weed and Clubroot Management Plan developed in consultation with appropriate municipal and provincial authorities and affected landowners. The management plan shall be based on a risk evaluation, taking into consideration the presence of crops susceptible of being affected by clubroot disease, past or actual occurrence of clubroot disease, the extent and frequency of use of vehicles and equipment on the right-of-way that may spread clubroot disease, and weather conditions conducive to the spread of clubroot. The management plan shall include all appropriate measures to align with the key objectives of Alberta's Clubroot Management Plan.

The updated Weed and Clubroot Management Plan shall include, but not be limited to, the following elements:

a) Enbridge's procedure for third-party screening for weed seeds in any imported sources of fill and gravel, including consultation and documentation procedures;
b) confirmation that all landowners owning cultivated properties crossed by the Pipeline RoW and temporary workspace were offered both pre- and post-construction laboratory testing for clubroot;
c) methodology used for pre- and post-construction testing for clubroot where it was requested including the sampling protocols, and how the results were used to refine the clubroot risk evaluation and mitigation measures;
d) mitigation strategies that encompass all potential vectors of clubroot-infected soils, including foot traffic, vehicles, equipment, and wind erosion of exposed soils, including a description of any cleaning and disinfection protocols;
e) processes for disassembly and disposal of wash stations and cleaning equipment; and
f) an auditing and enforcement plan to confirm that all measures are followed consistently and appropriately by all Project personnel and contractors in all phases of construction and operations.

9. Commitments Tracking Table

Enbridge shall:

a) file with the Board and post on its Project website, at least 30 days prior to commencing construction, a Commitments Tracking Table listing all commitments made by Enbridge in its Application, and as otherwise agreed to during questioning or in its related submissions, including reference to:
    i) the documentation in which the commitment appears (for example, the Application, responses to information requests, hearing transcripts, permit requirements, condition filings, or other);
    ii) the accountable lead for implementing each commitment; and
    iii) the estimated timelines associated with the fulfillment of each commitment.

b) update the status of the commitments in a) on its Project website on a:

   i) monthly basis until the commencement of operation; and
   ii) quarterly basis until the end of the fifth (5th) year following the commencement of operation.

c) maintain at its construction office(s):

   i) the Commitments Tracking Table listing all regulatory commitments and their completion status, including but not limited to those commitments resulting from Enbridge's Application and subsequent filings and conditions from permits, authorizations and approvals;
   ii) copies of any permits, approvals or authorizations issued by federal, provincial or other permitting authorities, which include environmental conditions or site-specific mitigation or monitoring measures; and
   iii) any subsequent variances to any permits, approvals or authorizations in ii).

10. Heritage Resources

Enbridge shall file with the Board, at least 14 days prior to commencing construction:

a) copies of correspondence from Alberta Culture confirming that Enbridge has obtained the required archaeological and heritage resource permits and clearances; and
b) a statement on how Enbridge proposes to address any comments and recommendations contained in the permits and clearances referred to in a).

11. Traditional Land Use Investigations

Enbridge shall file with the Board for approval, at least 45 days prior to commencing construction, and serve a copy on Alexander First Nation, Enoch Cree Nation, Louis Bull Tribe, Montana First Nation, and Samson Cree Nation a report outlining a plan for outstanding traditional land use (TLU) investigations for the Section 52 Facility.

The report shall include but not be limited to:

a) a summary of the status of TLU investigations undertaken, including group-specific TLU studies and any supplementary physical, bio-physical and heritage resource field investigation or reconnaissance activities relevant to potentially-affected Aboriginal groups;
b) a summary of the effects of the Section 52 Facility on the current use of lands and resources for traditional purposes identified in the investigations;
c) a summary of the mitigation measures proposed by Enbridge or by affected Aboriginal groups to address the effects of the Section 52 Facility identified in the investigations;
d) a description of how Enbridge has incorporated any additional mitigation measures into its EPP;
e) a description of any outstanding concerns raised by potentially-affected Aboriginal groups regarding potential effects of the Section 52 Facility on the current use of

lands and resources for traditional purposes, including a description of how these concerns have been or will be addressed by Enbridge; and

f) a summary of any outstanding TLU investigations or follow-up activities that will not be completed prior to commencing construction, including an explanation for why these will not be completed prior to construction, and an estimated completion date, if applicable.

During Construction

12. Construction Progress Reports

Enbridge shall file with the Board at the middle and end of each month, construction progress reports for the Section 52 Facility. The reports shall include information on the activities carried out during the reporting period, any environmental, safety and security issues and issues of non-compliance, and the measures undertaken for the resolution of each issue and non-compliance.

13. Field Joining Program (Welding and Non-Destructive Examination)

Enbridge shall file with the Board, at least 14 days prior to the start of any field joining activity, a field joining program for the Section 52 Facility.

Post-Construction and Operations

14. Post-Construction Monitoring Report

On or before 31 January after each of the first (1st), third (3rd) and fifth (5th) complete growing seasons following the commencement of operation of the Section 52 Facility, Enbridge shall file with the Board a post-construction monitoring report that:

a) describes the methodology used for monitoring;
b) identifies any modifications from the criteria established for evaluating reclamation success described in its EPP, as approved by the Board, and the rationale for any modifications;
c) identifies the issues to be monitored, including but not limited to unexpected issues that arose during construction, and their locations (e.g., on a map, diagram or table);
d) describes the current status of the issues (resolved or unresolved), any deviations from plans, and corrective actions undertaken;
e) assesses the effectiveness of mitigation measures (planned and corrective) against the criteria for success;
f) includes an assessment of the efficacy of the clubroot mitigation measures implemented during construction;
g) includes details of consultation undertaken with appropriate provincial and federal authorities and affected landowners; and
h) provides proposed measures and the schedule that Enbridge will implement to address any ongoing issues or concerns.

The report shall address, but not be limited to, the issues pertaining to soils, agricultural production, weeds, watercourse crossings, wetlands, rare plants, wildlife and wildlife habitat including species at risk, and any activities associated with the hydrostatic testing plans.

15. Post-Construction Wetland Monitoring and Compensation Report

On or before 31 January after the fifth (5^{th}) complete growing season following the commencement of operation of the Section 52 Facility, Enbridge shall file with the Board a wetland monitoring and compensation report that includes:

a) the extent (hectares) by wetland type that was impacted by the Section 52 Facility at the time of construction;
b) for each wetland impacted by the Section 52 Facility, an evaluation of reclamation success with reference to the intended condition and measurable goals established in the EPP (Certificate Condition 7 h));
c) an identification of any wetlands that have not yet achieved the intended degree of reclamation success;
d) for those wetlands identified in c), detailed compensation measures;
e) for those wetlands identified in c), the details of a program to monitor the success of the wetland compensation measures to verify restoration and no net loss of wetland function from the Section 52 Facility; and
f) the results of consultation with appropriate provincial and federal authorities.

16. Conditions Compliance by a Company Officer

Within 30 days of the date that the approved Section 52 Facility is placed in service, Enbridge shall file with the Board a confirmation, by an officer of the company, that the approved Section 52 Facility was completed and constructed in compliance with all applicable conditions in this Certificate.

If compliance with any of the applicable conditions cannot be confirmed, the officer of the company shall file with the Board details as to why compliance cannot be confirmed. Any filing required by this condition shall include a statement confirming that the signatory to the filing is an officer of the company.

17. Sunset Clause

This Certificate shall expire on [one year from the date the Certificate is granted], unless construction in respect of the Section 52 Facility has commenced by that date.

Appendix III

Section 58 Order Conditions

In these conditions, the expression "commencing construction" means the clearing of vegetation, ground-breaking and other forms of right-of-way (RoW) preparation that may have an impact on the environment, but does not include activities associated with normal surveying.

In these conditions, where any condition requires a filing with the National Energy Board (Board)"for approval" prior to an action taking place, Enbridge must not commence that action until the approval is issued.

Section 58 Facilities: Enbridge's proposed construction and operation of a new initiating pump station at its existing Edmonton Terminal, a new pump station at each of its existing Kingman and Strome stations, and associated facilities and infrastructure at its existing Edmonton and Hardisty Terminals.

Order: A Board exemption Order made under section 58 of the *National Energy Board Act* (NEB Act), exempting certain facilities from specific provisions of the NEB Act. In this case Enbridge requested an Order relieving it from paragraphs 30(1)(b), 31(c), 31(d) and sections 33 and 47 of the NEB Act in respect of its proposed new pump stations and associated facilities.

General

1. Condition Compliance

Enbridge shall comply with all of the conditions contained in this Order, unless the Board otherwise directs.

2. Project Design, Location, Construction, and Operation

Enbridge shall cause the approved Section 58 Facilities to be designed, located, constructed and operated in accordance with the specifications, standards, commitments made and other information referred to in its Application, and as otherwise agreed to during questioning or in its related submissions.

3. Implementation of Environmental Protection

Enbridge shall implement or cause to be implemented all of the policies, practices, programs, mitigation measures, recommendations, procedures and commitments for the protection of the environment included in or referred to in its Application, and as otherwise agreed to during questioning or in its related submissions.

Prior to Construction (Including Clearing or Ground-Breaking Activities)

4. Construction Schedule

Enbridge shall file with the Board, at least 14 days prior to commencing construction, a detailed construction schedule(s) identifying major construction activities, and shall notify the Board of any modifications to the schedule(s) as modifications occur.

5. Manuals and Programs

Enbridge shall file with the Board, within the time specified or as otherwise directed by the Board, the following:

a) Construction Safety Manual – 14 days prior to commencing construction;
b) Field Emergency Preparedness and Response Plan – 14 days prior to commencing construction;
c) Confirmation that a Security Management Plan for the construction of the Section 58 Facilities, pursuant to the *National Energy Board Onshore Pipeline Regulations* and CSA Z246.1, has been developed – 14 days prior to commencing construction; and
d) Field Pressure Testing Program – 14 days prior to pressure test.

6. Environmental Protection Plan

Enbridge shall file with the Board for approval, at least 45 days prior to commencing construction, an updated project-specific Environmental Protection Plan (EPP) (including Environmental Alignment Sheets) for the Section 58 Facilities as well as for temporary infrastructure. The EPP shall describe all environmental and socio-economic protection procedures, mitigation and monitoring commitments, as set out in Enbridge's Application and as otherwise agreed to during questioning or in its related submissions. The EPP shall describe the criteria for implementing all procedures and measures, and shall use clear and unambiguous language that confirms Enbridge's intention to implement all of its commitments.

7. Commitments Tracking Table

Enbridge shall:

a) file with the Board and post on its Project website, at least 30 days prior to the commencement of construction, a Commitments Tracking Table listing all commitments made by Enbridge in its Application, during questioning, in its related submissions, including reference to:
   i) the documentation in which the commitment appears (for example, the Application, responses to information requests, hearing transcripts, permit requirements, condition filings, or other);
   ii) the accountable lead for implementing each commitment; and
   iii) the estimated timelines associated with the fulfillment of each commitment.

b) update the status of the commitments in a) on its Project website on a:
   i) monthly basis until the commencement of operation; and

ii) quarterly basis until the end of the fifth (5th) year following the commencement of operation.

c) maintain at its construction office(s):
   i) the Commitments Tracking Table listing all regulatory commitments and their completion status, including but not limited to those commitments resulting from Enbridge's Application and subsequent filings and conditions from permits, authorizations and approvals;
   ii) copies of any permits, approvals or authorization for the Section 58 Facilities issued by federal, provincial or other permitting authorities, which include environmental conditions or site-specific mitigation or monitoring measures; and
   iii) any subsequent variances to any permits, approvals or authorizations in ii).

8. Heritage Resources

Enbridge shall file with the Board, at least 30 days prior to commencing construction of the Strome Pump station:

a) copies of correspondence from Alberta Culture confirming that Enbridge has obtained all of the required archaeological and heritage resource permits and clearances; and
b) a statement on how Enbridge proposes to address any comments and recommendations contained in the permits and clearances referred to in a).

During Construction

9. Construction Progress Reports

Enbridge shall file with the Board at the middle and end of each month, construction progress reports for Section 58 Facilities. The reports shall include information on the activities carried out during the reporting period; any environmental, safety and security issues and issues of non-compliance, and the measures undertaken for the resolution of each issue and non-compliance.

10. Field Joining Program (Welding and Non-Destructive Examination)

Enbridge shall file with the Board, at least 14 days prior to start of any field joining activity on the Project, a field joining program for Section 58 Facilities.

Post-Construction and Operations

11. Post-Construction Monitoring Report

On or before 31 January in each of the first (1st), third (3rd) and fifth (5th) years following the first full growing season after the commencement of operation of the Section 58 Facilities, Enbridge shall file with the Board a post-construction monitoring report that:

a) describes the methodology used for monitoring;
b) identifies the issues to be monitored, including but not limited to unexpected issues that arose during construction;

c) describes the current status of the issues (resolved or unresolved), any deviations from plans and corrective actions undertaken;
d) assesses the effectiveness of mitigation measures (planned and corrective); and
e) provides proposed measures and the schedule that Enbridge will implement to address any ongoing issues or concerns.

The reports shall address, but not be limited to, the issues pertaining to: the temporarily disturbed lands adjacent to the Edmonton Terminal (especially wetlands, wildlife and wildlife habitat), topsoil berms and any remnant non-gravelled surfaces at the terminals and stations (especially weeds, erosion control and drainage), and incidental wildlife at the terminals and stations. Post-construction monitoring reports will not continue to be required at locations where issues are resolved in a previous report.

12. Post-Construction Noise Surveys

Enbridge shall file with the Board, no later than 90 days after the Section 58 Facilities are placed in service, the results of post-construction noise surveys conducted at the Edmonton Terminal and at the Kingman and Strome pump stations, demonstrating compliance with the Alberta Energy Regulator (formerly the Energy Resources Conservation Board) Directive 038: Noise Control, and any further mitigation that Enbridge would undertake to address such compliance.

13. Conditions Compliance by a Company Officer

Within 30 days of the date that the approved Section 58 Facilities are placed in service, Enbridge shall file with the Board a confirmation, by an officer of the company, that the approved Project was completed and constructed in compliance with all applicable conditions in this Order.

If compliance with any of the applicable conditions cannot be confirmed, the officer of the company shall file with the Board details as to why compliance cannot be confirmed. Any filing required by this condition shall include a statement confirming that the signatory to the filing is an officer of the company.

14. Sunset Clause

This Order shall expire on [one year from the date the Order is granted], unless construction in respect of the Section 58 Facilities has commenced by that date.